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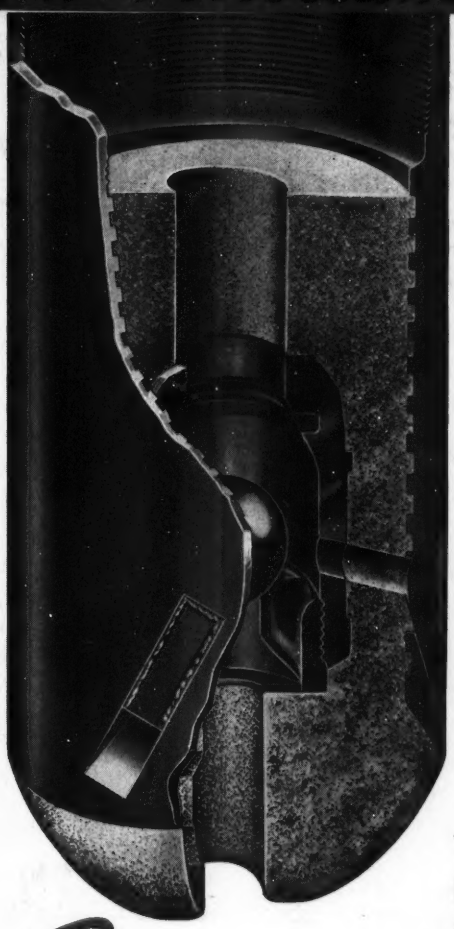

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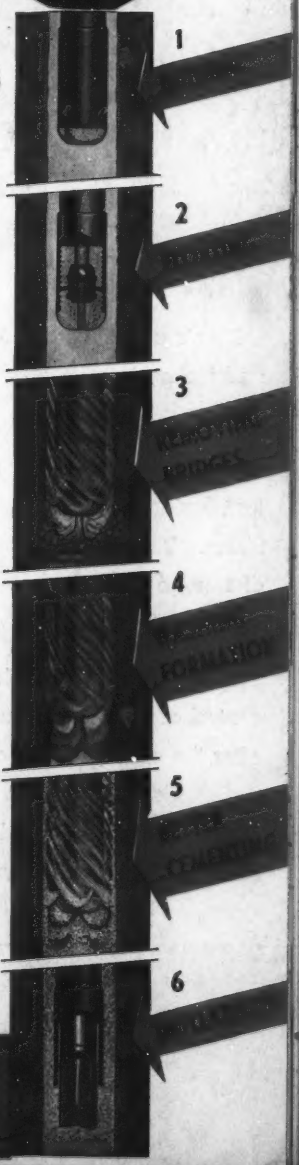

THIS NEW WHIRLER PRINCIPLE TYPE OF SHOE *HAS EVERYTHING*

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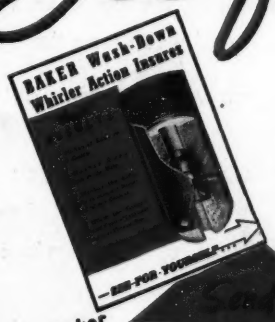

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4. **WASHING FORMATION** at the cementing point to condition the hole preparatory to cementing, is another Result . . .
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6. **DRILLABILITY** is always assured when you have only "Baker-Formula" Concrete and a minimum amount of Bakelite to drill up into small, harmless fragments that circulate out of the hole.

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BAKER OIL TOOLS, INC.

Vol. 31
No. 17
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Here's a new Bowen tool that will save you a lot of time and money in reconditioning your well!

It's the new Bowen Pressure Bailer—a Bailer that contains every feature of regular hydro-static bailers **plus** the important feature that **it will not suck down into the sand** when filling. There's real economy in a tool that keeps you out of trouble on bottom—and that's exactly what this Bailer does!

The Bowen Bailer is the only one that is in **complete control** of the operator at all times, because it trips and fills **after** the slack is taken out of the line and jars. When the tool reaches bottom, the sand reel is reversed and the slack taken out of the line and jars. Then, just as the bailer itself starts to lift, the pressure valve opens, allowing sand and debris to rush into the bailer under hydrostatic pres But the shoe of the bailer rests on the bottom until an 8 telescopic joint has expanded, thus assuring ample tim the bailer to fill before it is picked off of bottom. Yet th no chance for the tool to pull down into the sand and because of the strain on the line!

Use this bailer to clean out junk in the hole, to rea sand bridges, to bail mud and fluid—in fact, for all ba operations. It will give you a faster, more efficient, **safer** job with less wear and tear on your equipment. desired, a junk bucket can be attached for picking up b metal objects such as cones and bit cutters. The Bai available in a wide range of sizes to fit every applic

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OIL WORLD
and Petroleum Industry

THE AUTHORITY ON THE CALIFORNIA OIL INDUSTRY

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SEPTEMBER 1938
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WHOLE NO. 1520

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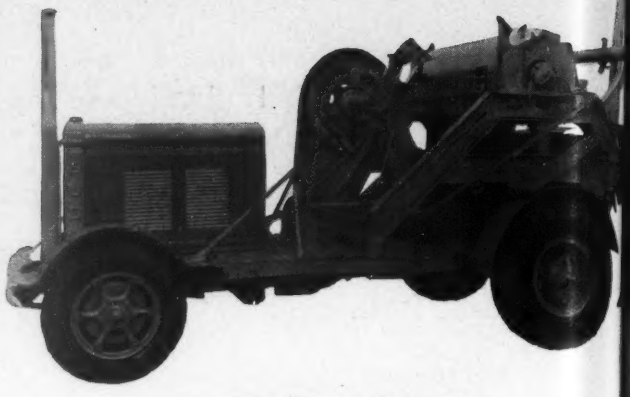

Double Drum Model with Spudder and Mast in place

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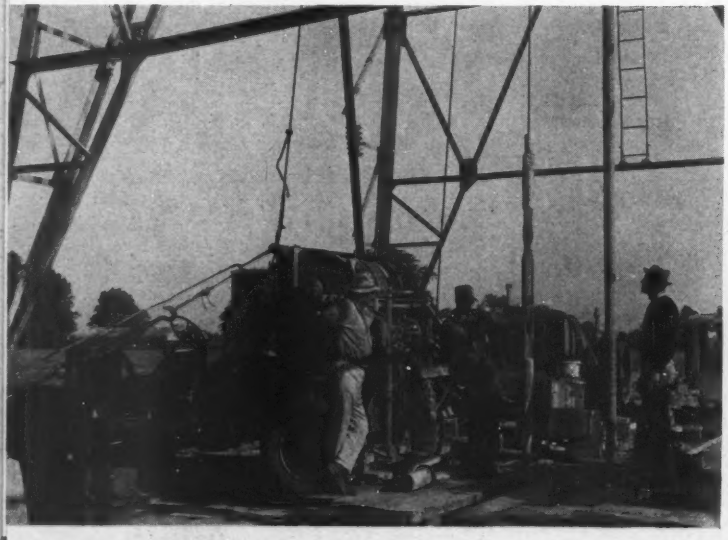

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Discovery of Ten Section Field by Shell

Early Triumph of Seismograph

By C. E. PEAVY*

The Ten Section field, located approximately 12 miles southwest of Bakersfield, was discovered by Shell Oil Company on June 2, 1936, with the completion of Stevens A-1 at a depth of 7880 feet. The location of this wildcat well had been selected on the basis of geophysical prospecting which had indicated a sub-surface high. Drilling was started in January of 1936.

This well was one of the first of the so-called "slim-hole" tests to be drilled in California. The 20-inch conductor pipe was cemented at a depth of 40 feet. The 13⅜ inch surface casing was set in 18⅝ inch hole at 1000 feet, and 8½ inch hole was then drilled and cored to the final depth of 7880 feet. Approximately the last 80 feet of formation cored was oil sand. The hole was then reamed to a diameter of 12¼ inch, and a string of 7-inch, 30-pound Grade D casing was set at 7800 feet. A 108-foot, 4¼ inch, 16-pound Grade D liner was hung on bottom with top of perforations at 7915 feet.

This hole was also one of the first wells in California in which wire line coring was used, intermittent cores having been taken either at 50-foot or at 100-ft intervals from a depth of about 2300 feet to a point where the oil sand was picked up. Before setting 7-inch casing, the Schulmberger electrical logging device was run into the well.

During a short flow test on June 2, the well produced 60.4° A.P.I. gravity oil at the rate of about 1200 barrels daily, accompanied by 15 to 18 million cubic feet of gas. Upon beaning the well back to a daily rate of approximately 850 barrels of fluid through a ½ inch bean, the casing pressure built up to approximately 2500 pounds per square inch. The type of well head connections prevented further curtailment. The tubing used in the well was the regular, 2½ inch upset tubing.

The discovery well was drilled and cored to its original depth of 7880 feet in about 85 days, but to ream the slim hole out to 12¼ inch in diameter, set casing, and further complete the well, required a total of 144 days. Drilling times have now been greatly reduced and the best time made to date is 37 days from "spudding-in" to flowing into the tank.

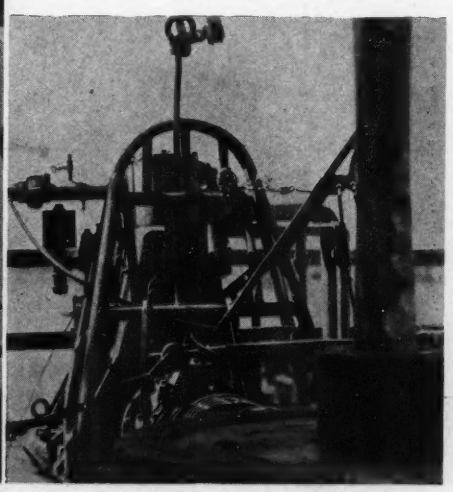
Drilling mud was controlled by chemical treatment and no particular trouble was experienced with caving hole, heaving shale, or lost circulation. Little or no weight material was used.

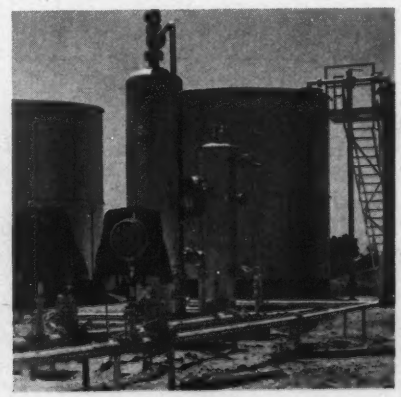
The following men were in charge of drilling operations at the Ten Section field discovery well: Ralph Ashbaugh, drilling foreman; Harold E. Radford, mud engineer; Eli Pederson, drilling superintendent, and C. E. Peavy, division superintendent. Drillers who worked on the well were: U. M. Warren, C. E. Walters, Andy Nelson, W. R. Hazlip, and J. Searles.

Approximately nine months later, the discovery well was deepened to a final depth of 8240 feet, and during a potential test produced at the rate of approximately 3800 barrels of 34° A.P.I. gravity oil per day. The gas rate was about 3 million cubic feet. The object of this deepening job was to shut off the upper portion of the gas cap and to complete the well in the lower zones with a more desirable gas-oil ratio. Wells are now completed at approximately 8220 feet and the oil is similar to that produced from the discovery well after it was deepened. At present, there are 28 wells producing at Ten Section field, with a total potential production of approximately 50,000 barrels daily, and with an aggregate allotment of approximately 7500 barrels daily. Gas production is slightly less than 6 million cubic feet per day. All wells are highly curtailed and any one currently completed which can demonstrate a capacity to

*Division Superintendent, Shell Oil Co., Bakersfield, Calif.

High rotative speeds, less weight on bit—the driller watches his indicators. The trend is toward individually powered rotary tables. At right, oil and gas part company.

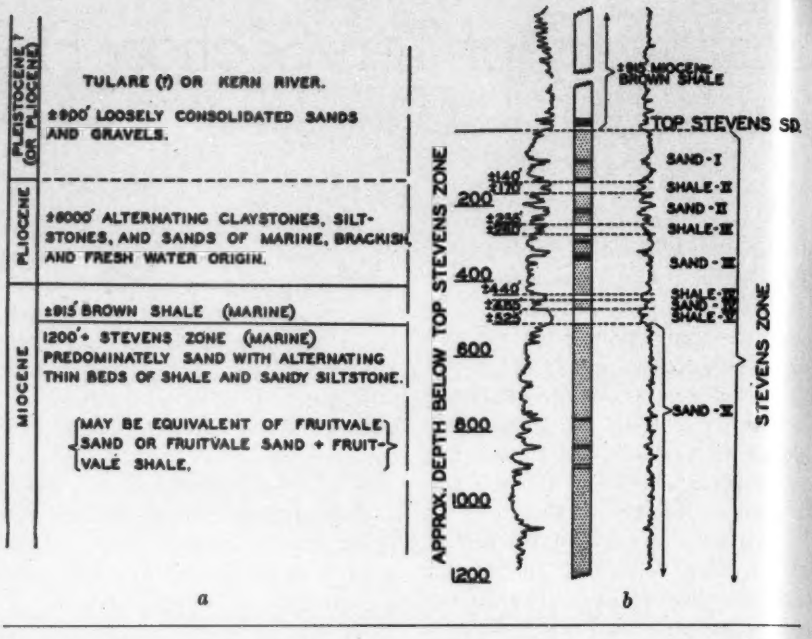


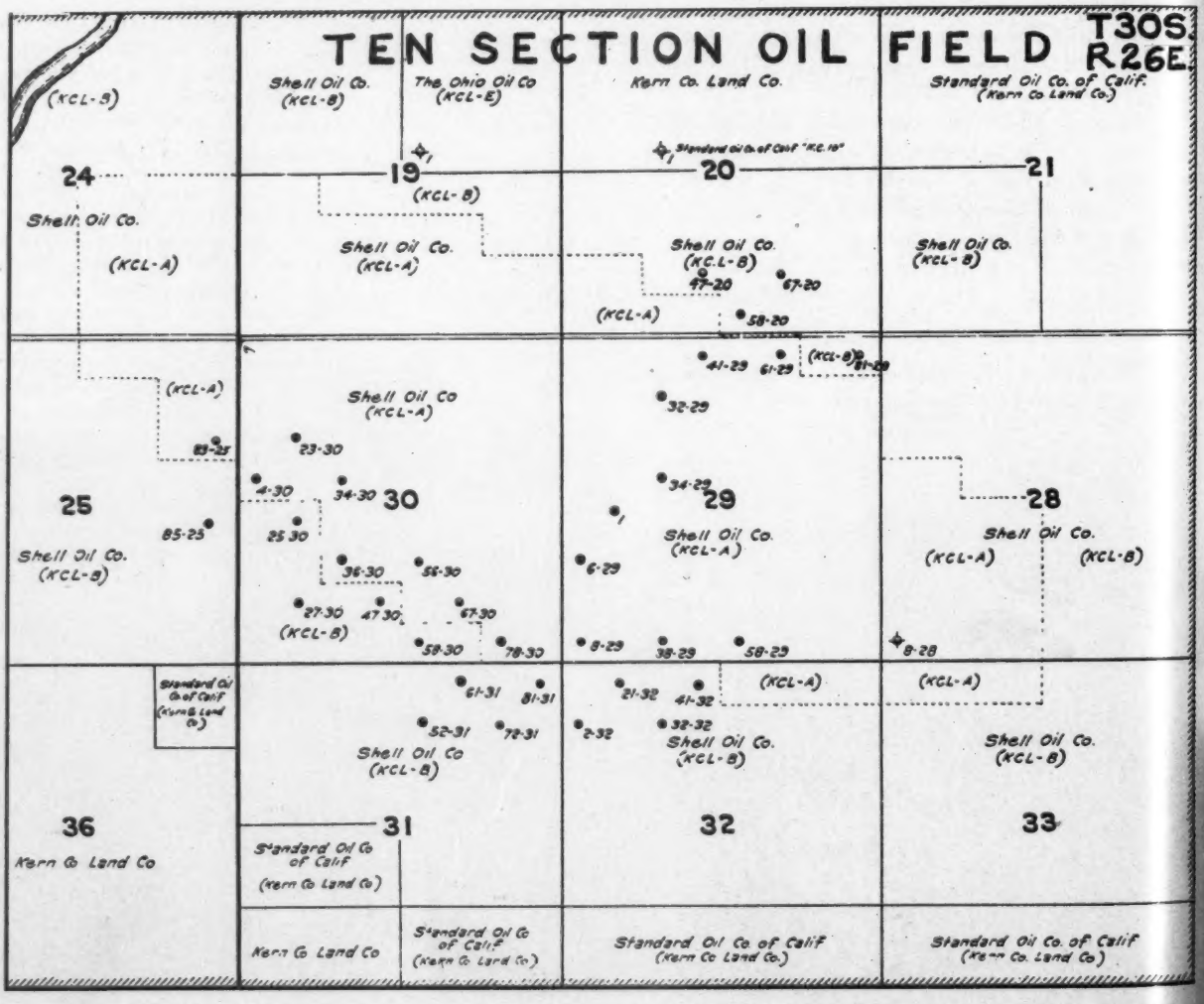


produce over 2180 barrels daily is given a final allotment of 285 barrels daily, which is the maximum allotment for any well in the field.

All wells are flowing, and, as stated above, they are strictly curtailed. Some wells are flowing at the rate of 275 barrels daily through a 3/16-inch bean, or orifice, with a tubing pressure of, say, 2200 pounds, and a casing pressure of about 2500 pounds. The oil and gas flows through both high and low pressure gas separators and then into collecting tanks. Gas is taken from the high pressure trap at a pressure of 400 pounds per square inch, and from the low pressure trap at 50 pounds per square inch. This gas is transported by its own energy through pipelines into the absorption plant.

Oil is pumped from the flow tanks to a field tank farm by a small centrifugal pump which is driven by a multiple cylinder gas engine and from the field tank farm the oil is moved to the companys' main tank farm, located near Bakersfield, by large centrifugal pumps, likewise powered by multiple cylinder gas engines. From the main tank farm the oil is transmitted through Shell Oil Company's valley pipeline to Coalinga and Martinez. All shipping pump en-





Read THIS PAGE

. . . THEN SEND FOR THE WHOLE BOOKLET!

VERTICAL WELLS

. . . CAN BE DRILLED ANYWHERE—IN ANY FORMATION—BY ANY DRILLER WITH THE

TOTCO DRIFT RECORDER

and

TOTCO METHODS OF CONTROLLED VERTICAL DRILLING

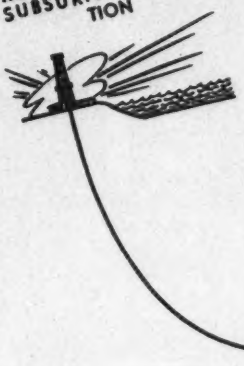
ALL WELLS CAN BE GROUPED

INTO THREE CLASSES, ACCORDING TO THE METHODS EMPLOYED TO DRILL THEM AND THE OBJECTIVE DESIRED TO BE REACHED. THE THREE CLASSES OF WELLS ARE, BRIEFLY,

WELLS DRILLED VERTICALLY BY CONTROLLED VERTICAL DRILLING METHODS

Straight, vertical holes are drilled intentionally, not by accident. Accurate control of the course of the bit CANNOT be exercised without frequent drift records which are immediately readable, and accurate to a fraction of a degree. DIRECTION READINGS are unnecessary, for the hole is never permitted to develop a "trend."

WELLS DRILLED DIRECTIONALLY TO REACH A DEFINITE SUBSURFACE LOCATION



Well surveying is an essential part of the art of directional drilling. Direction readings and vertical-angle records are both essential, for the well is forced to develop a definite trend in a predetermined direction. Special tools and equipment are employed during the drilling of a directional well, but only the regular tools and equipment are used in Controlled Vertical Drilling.

WELLS DESIRED TO FOLLOW A VERTICAL COURSE—BUT DRILLED BY DIRECTIONAL METHODS

Wells in this class are neither vertical wells nor directional wells. They are crooked to a greater or less degree, even though inclination readings are taken at intervals. Should the maximum allowable angle be exceeded, DIRECTIONAL drilling tools and methods are generally used to turn the well or reduce the angle. This work costs money, takes time, is sometimes unsuccessful, and ALWAYS results in a crooked hole, even though the hole may ultimately bottom under the derrick floor.

MOST WELLS ARE IN THIS CLASS

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gines in the field use natural gas from the company fuel lines.

Concerning the equipment used in the Ten Section field, there was nothing unusual in the installations at the discovery well, the only unique feature at that date being represented by the wire line core barrel innovation. The drawworks used on Stevens A-1 was of the ordinary type and was sent to the Ten Section field from Ventura. The drilling engine was a 12-inch x 12-inch horizontal steam engine. Steam was furnished by four 150-pound, 100 horsepower horizontal tubular boilers.

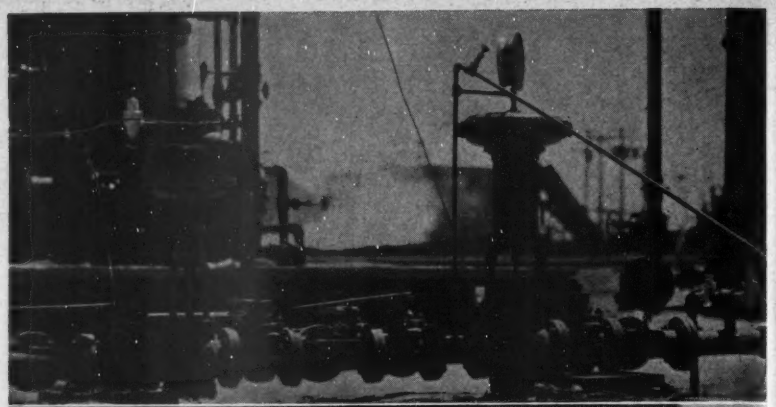
Present drilling equipment at Ten Section is not a great deal unlike that used in the discovery well. Drawworks are, of course, of the latest unitized design, but are not as large as the type used in the Rio Bravo field. The 12-inch x 12-inch drilling engines are still used, although high pressure steam is now supplied. Each well is now provided with three 100-horsepower, 250 or 300 pound fire box boilers of the portable type. Another feature which has been introducel since the drilling of the discovery well is the turning of the rotary table by means of an 8-inch x 9-inch steam engine placed under the derrick floor.

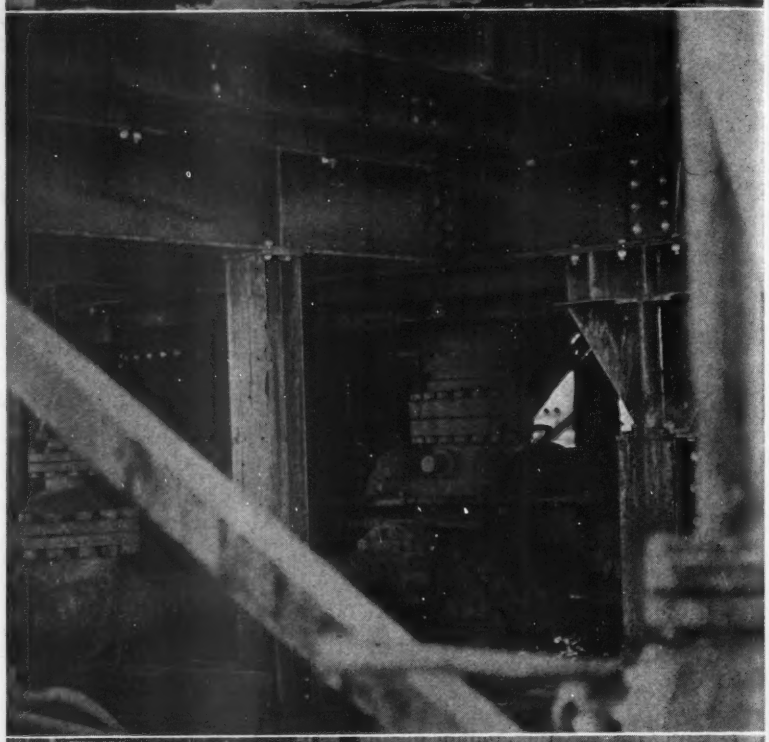
The difference between the drilling time of the original well and those of present wells is due in a large extent to more efficient use of the equipment at hand and in the unitization of all equipment. Mud pumps are unitized on skids so that the entire setting can be moved as a unit from one location to another. Both the outside and inside casing racks are made of steel with skids so that they may be dragged to the next location with a caterpillar tractor. Drawworks and steam engines are mounted on steel sub-bases.

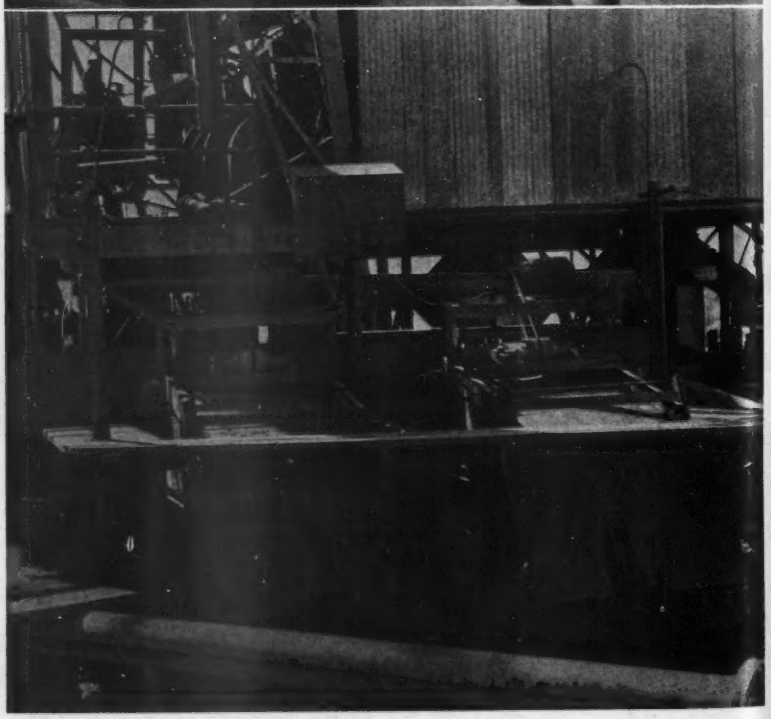
No concrete is used in foundations for the derricks. The derrricks are set upon a steel grillage or network of steel beams, the units thus formed being moved from one location to another. Thus, in Ten Section, the derricks are not left over a completed well but are moved ahead without any dismantling except for the removal of the crown block.

Moving a set of boilers from a completed well to a new one is a matter of less than 24 hours' time. Entire steam lines are sometimes moved intact. Steam separators, scrubbers, etc., are mounted within the steel sub-bases of the drilling engine, reducing pipe connections to a minimum.

Drilling technique has changed considerably since the completion of the



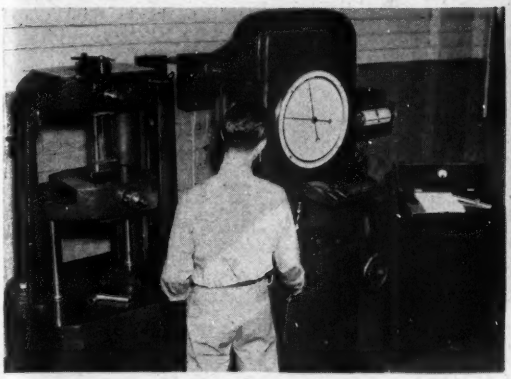




"Perfect control" is the driller's watchword in the deep high pressure fields. It costs too much to take a chance and protection is so easily available.

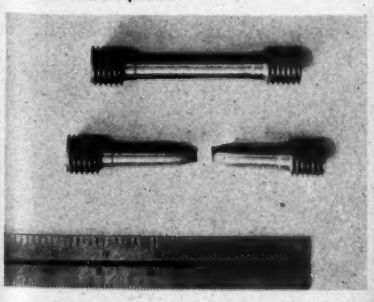
1. General view of Axelson chemical and physical testing laboratory.

LIFE TESTS ON AXELSON SUCKER RODS



2. Olsen machine for testing tensile strength, elasticity and related properties. Capacity of 100,000 pounds.

3 Olsen Brinell machine for testing hardness by forcing small test ball into flattened area on specimen.



4. Test pieces, machined from forged pins, before and after fracture in tensile testing machine.

No physical examination of a human being to determine his fitness for life insurance is as thorough, as comprehensive and as drastic as the tests given to every heat of Axelson Sucker Rod Steel. When these life tests are recorded, they show what can be expected in the actual performance of the rods as to strength under load, hardness, elasticity, impact, fatigue, corrosion and other conditions.

The Axelson Testing Laboratory is the vestibule through which all materials used in Axelson products must pass for rigid, ceaseless examinations. No doctor is as ruthless in rejecting a doubtful applicant for insurance as the Axelson examiners are in rejecting materials that do not come well above the established minimum specification requirements.

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AXELSON

DEEP WELL PLUNGER PUMPS

SUCKER RODS

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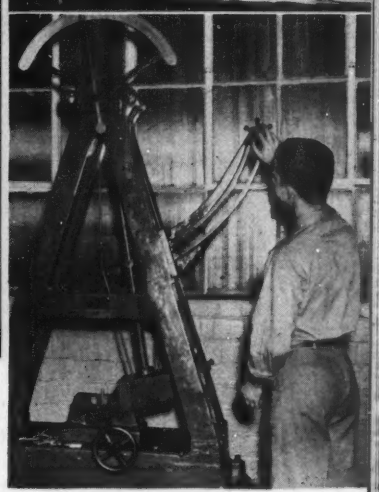
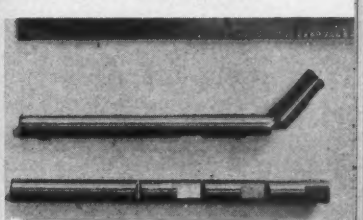
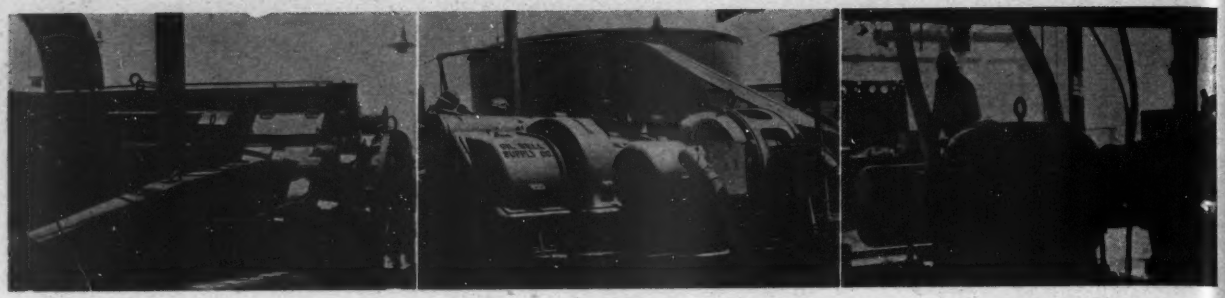


5. Olsen Izod machine for testing resistance of specimen to shock or impact.

6. Toughness proved by blow of 120 foot-pounds delivered to notched specimen.



7 Test pieces before and after Izod impact indicating shock resistance.



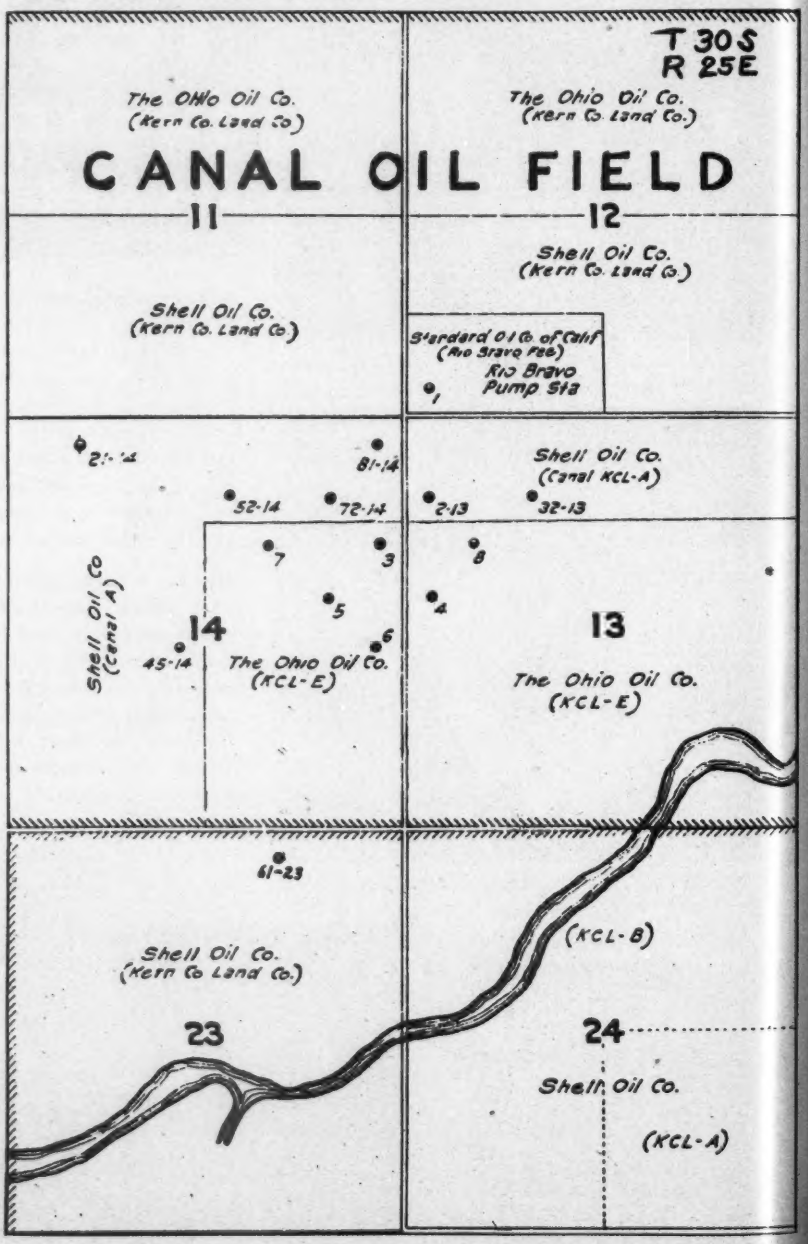
Fully enclosed drawworks equipped with hydromatic brakes are a common sight in the deep fields. In Ten Section Shell has an interesting electrical installation.

Ten Section field discovery well. More drilling weight is now used on bottom, which is made possible by the use of longer and larger drill collars.. Speeds of rotation have been increased and in some instances have been almost double those formerly used. The actual digging units, such as bits and core barrels, have been improved by manufacturers who have been quite progressive in designing new features, and in the use of hard metals. The flow of circulating fluid in the well has been improved by the use of slightly larger pumps, full-hole drill pipe, and higher pressure steam.

In current casing programs for the Ten Section field, no surface conductor is used. A string of 11¾ inch, 40-pound, welded slipjoint casing is set at 1000 feet in 15½ inch hole. Seven inch, 26 and 30 pound, Grade D casing is set in 10⅝ inch hole at approximately 8000 feet. On edge locations, that is, down flank locations, and also on locations high in the gas cap area, wells are completed with 4¾ inch drillable liners in order that redrilling or repair work can be done economically if and when required at some future time. On all other locations, 5½ inch perforated steel liners are used to complete the wells. These liners are approximately 220 feet long.

The geology of Ten Section Field was discussed in some detail by H. T. Wyatt and A. S. Baptie in a paper presented at the Los Angeles meeting of the American Institute of Mining and Metallurgical Engineers, October, 1937. The idealized column presented by these writers is shown here (Figure 5 in the original paper). This column, the writers state, "is illustrative of the present general, though tentative, conception of the field's stratigraphy."

Continuing to quote: "Immediately beneath the surface alluvium there are approximately 900 feet of loosely consolidated, fresh water sands and gravels interspersed with occasional thin layers of clays and sandy silts. These beds probably represent either the Tulare formation or the Kern River series of the upper Pliocene. Below these there occurs approximately 6000 feet of Pliocene deposits, which have not been classified. These beds may be equivalent to the Etchegoin formation. This portion of the section occurs as a monotonous series of alternating claystones, siltstones and sands, which apparently are of fresh-water, brackish and marine origin.



PROPER CONTROL

AS WELL AS PROPER SELECTION OF DRILLING MUD HELPS TO ELIMINATE DRILLING DIFFICULTIES

Adequate Testing Equipment is a Necessity for Proper Control

BAROID MUD-TESTING CABINET

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The BAROID Mud-Testing Cabinet facilitates proper control of drilling mud by providing the means to make all routine tests *right at the well.* This Cabinet is actually a portable and easily accessible mud-testing laboratory—yet it occupies a small amount of floor space.

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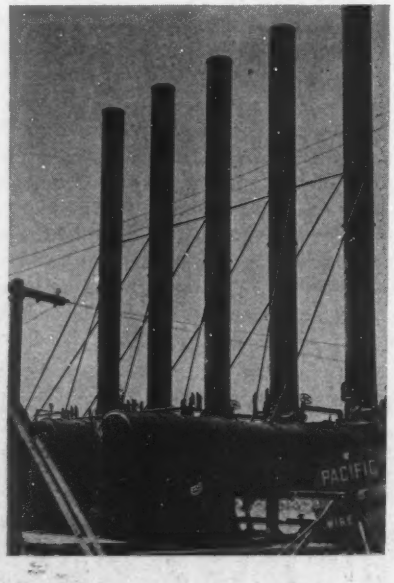
"The uppermost portion of the Miocene is represented by the so-called brown shale, which is approximately 915 feet thick. The Stevens zone, from which production is obtained in the field, is of upper Miocene age and lies directly beneath the brown shale. This zone has not been definitely correlated with any of the established Miocene formations in this area.

"The layers that form approximately the top 6900 feet of the section in this area are almost entirely composed of an alternating series of soft to firm claystones, siltstones, and loose to slightly consolidated, poorly cemented, easily friable sands. The uppermost beds of the Miocene (the brown shale) are composed of a series of uniformly deposited, dense, well indurated, generally well laminated, platy, dark brown shales. This member is characterized by numerous to abundant micro-organisms, pyritized diatoms, and resinous fish remains with occasional thinly bedded, dark-brown chert streaks.

"The Stevens zone is made up of a series of sand beds separated by shale streaks—there is a noticeable irregularity in the thickness of the various sand and shale members comprising the Stevens zone. This lack of uniform thickness is believed to be due to irregularity in depositional conditions. This belief is substantiated by common cross-bedding and irregular bedding in the sand members themselves, and in the shales.

"In general, the sands of the Stevens zone are moderately to fairly well cemented, compact, poorly to well sorted, medium-grained to slightly coarse in texture, and generally free from fine silt. The average porosity of the sands in the productive horizons is 16 per cent, the range varying from 12 to 20 per cent."



Referring directly to the "a" and "b" divisions of the idealized column shown here, the writers continue:

"The oil and gas accumulations in the Stevens zone, in the upper 614 feet at the crest of the structure, apparently are controlled entirely by the overlying impervious shale beds and the underlying bottom and edge water. Five separate sand intervals have been found to be oil-bearing. These sands and their approximate thicknesses are shown in the idealized column "b" in conjunction with the generalized lithologic and electrical logs.

"Sand I was first penetrated 56 feet in the discovery well. At this point the well produced at a maximum rate of 858 barrels of oil daily, gravity 60.4° A.P.I., and 13,656M cu. ft. of gas per day. Below the gas-oil contact in this and lower zones there exists a dark oil having an average gravity of approximately 35° A.P.I.

"In sand II the oil-gas contact is nearly horizontal, and at the crest of the structure the contact occurs at about the mid-point of the sand body.

"Sand III, at the crest of the structure, is the thickest single sand body that occurs in the productive series. The gas cap in this sand is comparatively small. Some of the more pronounced variations in irregular deposition in the Stevens zone are apparent in sands III and IV.

"Sand IV has never been separately tested. It was excluded from production in KCL A-6-29 (second well in the field). In KCL A-39-29 it was tested simultaneously with the upper portion of Sand V, which was demonstrated to be water bearing. Although the water-location test that disclosed the latter information did not evidence any water in sand IV, it cannot be said conclusively that the sand is not water-bearing at that location. However, inspection of the cores and the electrical log revealed that sand IV in KCL A-78-30 was undoubtedly water-bearing. Thus such oil or gas as may exist in this sand will be confined to a limited area on the crest of the structure.

"Approximately 80 feet of sand V was found to be oil-bearing, and after lower water-bearing sands were plugged 70 feet of this zone was tested in KCL A-6-29. This interval produced 1535 barrels of clean oil daily, gravitiy 34.3° A.P.I., and 1541 M cu. ft. of gas. From this evidence, and from the data obtained from KCL A-34-29 and A-78-30, it is apparent that the oil accumulation in sand V has a very limited extent.

"Two principal methods have been used in this field for making sub-surface correlations: (1) lithologic, (2) electrical logging.

"Lithologic correlations in the Stevens zone are made from cored sections. Correlations by this method have proved to be reliable and are, in general, readily made. Lithologic correlation above the top of the Stevens zone has not been necessary for development purposes.

"The lithologic correlations all have been augmented and substantiated by correlation of electrical logs. It is the practice to record a complete log below the shoe of the surface water string. These logs are sufficiently uniform in general characteristics from well to well to show convincing and apparently reliable correlations through the entire section."

At a distance of 1½ or 2 miles northwest of the Ten Section structure, is the Canal structure. This field was discovered by the Ohio Oil Co. in its KCL E-3 during the latter part of 1937. As far as the Shell Oil Company's operations are concerned, drilling equipment, drilling conditions, depths of the wells, type of production, and amount of production are all similar to those at Ten Section.

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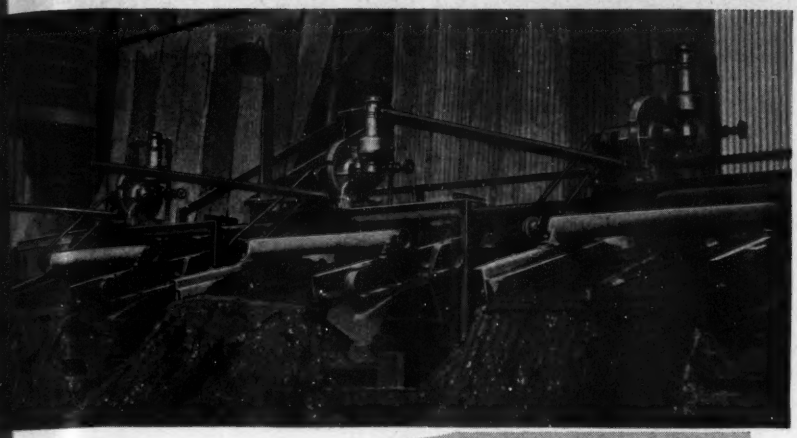

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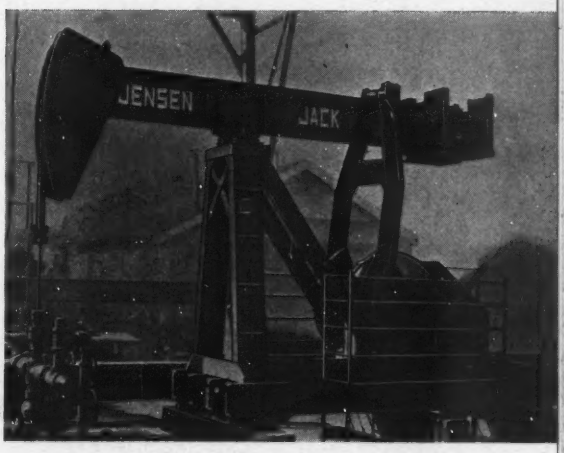
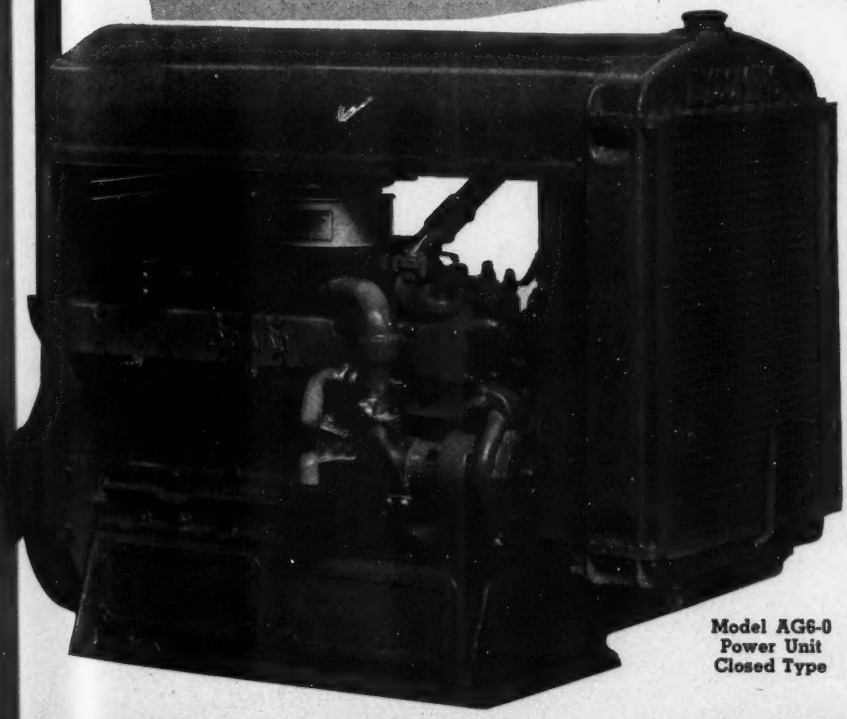


JENSEN JACKS

This is the Model 14-C Wire Line Head Jensen Pumping Unit, photographed in operation in the Wilmington field. This unit has a maximum capacity of 14,000 pound peak load; six other sizes of Jensen units are available to meet various field requirements. Sold, serviced, and stocked by Medearis Oilwell Supply Co. Send for illustrated bulletin describing them.



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Rio Bravo Discovery Spurred Deep Tests

Rich Pay Hit After Greeley Sand Fails

By Carl A. Steiner *

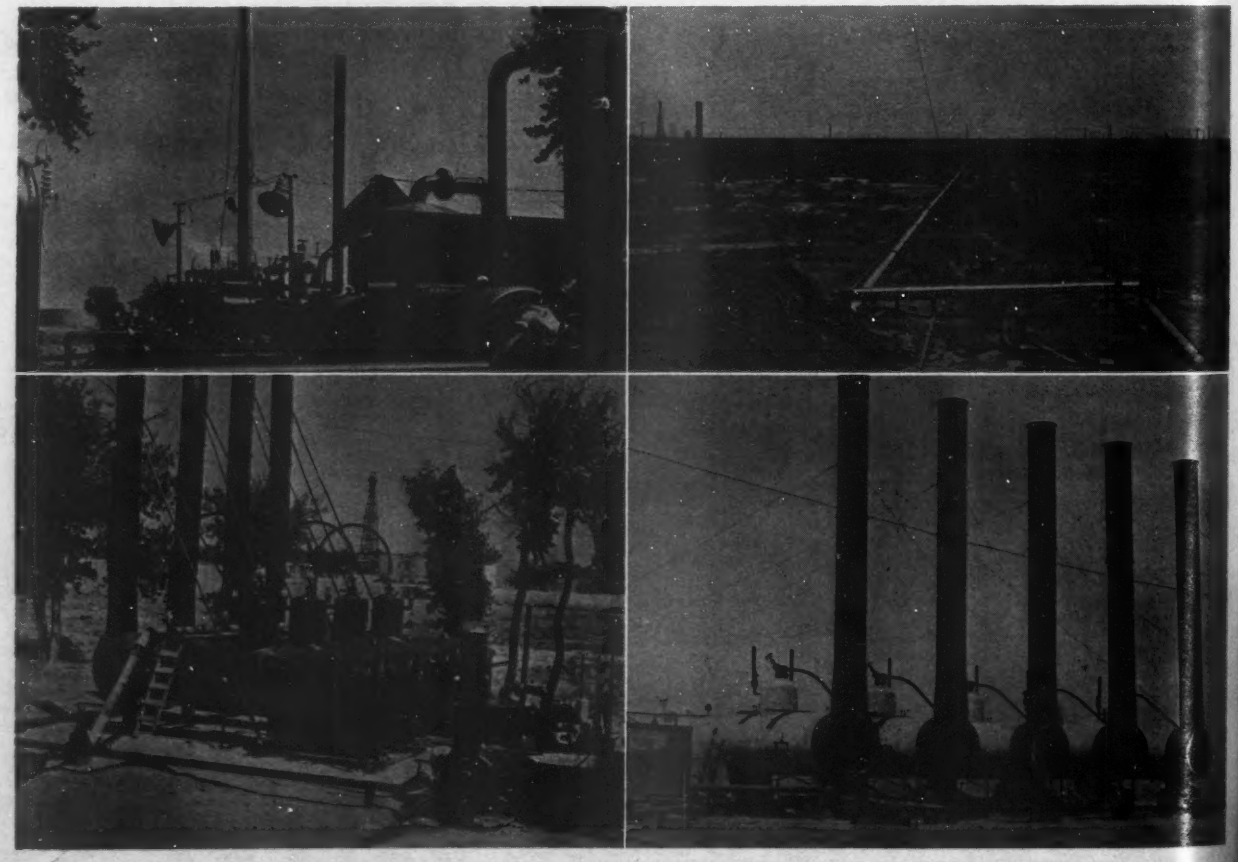
The discovery of the Ten Section and Greeley Fields in the San Joaquin Valley spurred efforts toward discovering fields of this type to the north and northwest of these areas. The Union Oil Company Kernco No. 1-34 well was started as a wildcat well with such an objective in mind. Based upon seismograph geophysical work, there was evidence pointing toward a structural high in the general area surrounding the location of Kernco 1-34. The actual location of this well is 330 feet South and 330 feet West of the E¼ corner of Section 34, T. 28S., R. 25 E, and this location was believed to be very favorable for testing the structure indicated. The objective of this well was the Greeley sand horizon which was expected to be found in the neighborhood of 8400 feet. Union Oil Kernco No. 1-34 was spudded on March 29, 1937.

In the drilling of this well the lower part of the Middle Etchegoin formation was cored continuously in an effort to locate production in sands overlying the Miocene. This effort failed to reveal any showings of petroleum of any sort. The top of the Miocene was penetrated at approximately 7650 feet, and the equivalent horizon of the Greeley sand section in the Greeley Field was cored continuously but failed to yield any oil sands outside of the possible exception of a 1½ foot streak of oil sand and shell occurring at approximately 8560 feet. In spite of the absence of sands the shales in this horizon were abundantly petroliferous and the mud in the returns from bottom was often very gassy and oily.

After the Greeley sand horizon was found to be absent in this area, the well was carried down in the hope of uncovering a deeper objective. In this case this proved to be the so-called McVan and Olcese sands which were found beginning at 10,269 feet. These sands all appeared very tight and fine and had faint evidence of petroleum as determined from cuts and odors. In order to test these sands a string of 6⅝-inch casing was cemented at 10,248 feet. This, by the way, was the first casing placed in the hole after the surface protection string of 13⅜-inch had been set at 1143 feet. Upon testing the McVan sand independently through a formation tester with the packer set in

*Union Oil Co. District Engineer.

Deep drilling calls for higher steam pressures. Superheaters may be integral or separate and some operators use one battery for four locations.



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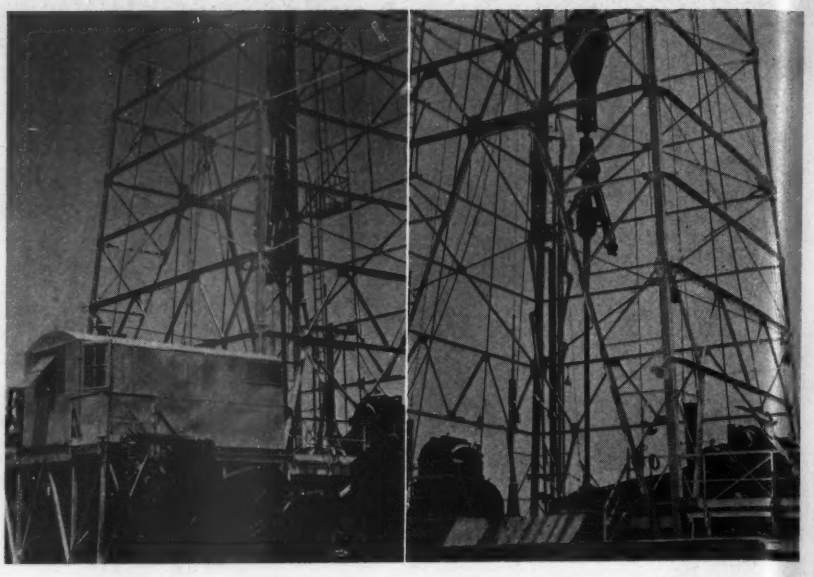
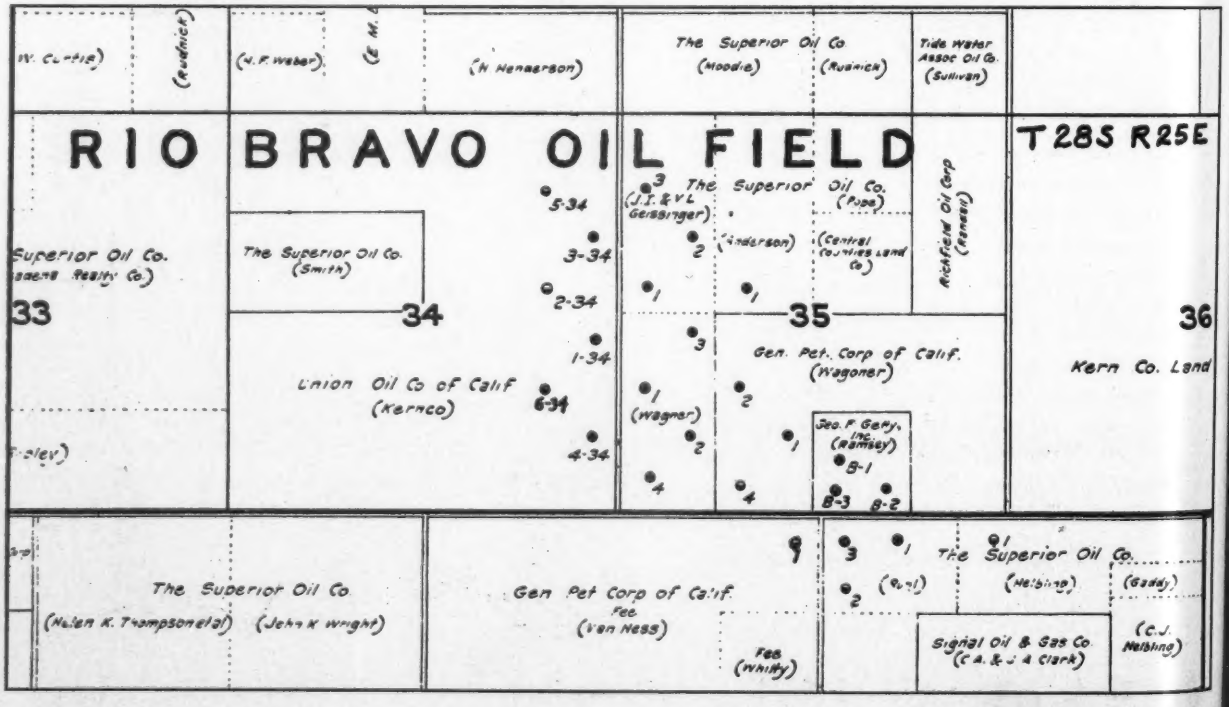
the 6⅝-inch casing, only a small rise of salt water was obtained. In a later test of the McVan and Olcese sands together by means of testing the interval through tubing without the use of the liner, an approximate 1000-foot rise of oil and some water was obtained after the well had been swabbed down to 7500 feet. With these objectives tested, the well was drilled and cored alternately down to a depth of 11,240 feet at which point an oil sand horizon of 55-feet thickness was encountered. This sand was fine grained and very well sorted, giving off a good kerosene odor and yielding amber cuts with carbon tetrachloride. The permeability and porosity of the sand appeared favorable and after passing through the sand body at 11,295 feet and coring into a gritty siltstone horizon to 11,302 feet, preparations were made to test this lower sand which was named "Rio Bravo Sand."

A blank 4¼-inch drillable liner was cemented in the hole at 11,220 feet in order to isolate the upper sands above the Rio Bravo which were found below the 6⅝-inch casing point. After cleaning out cement and cleaning out to bottom at 11,302 feet, 2½-inch tubing was run to 10,000 feet and upon displacing the mud in the hole with water the well started flowing and was completed as a commercial producer on November 4, 1937, and in so doing the Rio Bravo Field had its inception as this name was applied to the field.



There is more than $150,000 in equipment for this second Conoco Wasco deep well. Note neatness and convenience for drilling crews.

Although the discovery well was on Kern County Land Company property, the adjoining property was held by different owners, and this caused other companies to start operations in the area in contrast to the practically entire single company operations at Greeley and Ten Section Fields. When it was seen that the activity would be spreading over a considerable area, the majority of operators in this area who believed they had locations on this structure, agreed to space their wells in a one-well-to-twenty-acre pattern similar to that of Kettleman.


RIO BRAVO OIL FIELD
T 28S R 25E
33
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The Superior Oil Co.
The Superior Oil Co. (Smith)
Union Oil Co of Calif (Kernco)
Gen. Pet. Corp of Calif. (Wagoner)
Kern Co. Land
The Superior Oil Co (Helen K. Thompson et al) (John K Wright)
Gen Pet Corp of Calif. Fee (Van Ness)
Fee (Whitty)
The Superior Oil Co. (Nelbing)
Signal Oil & Gas Co. (C. A. & J. A. Clark)
(C. J. Nelbing)

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(Signed) D. R. McKinley

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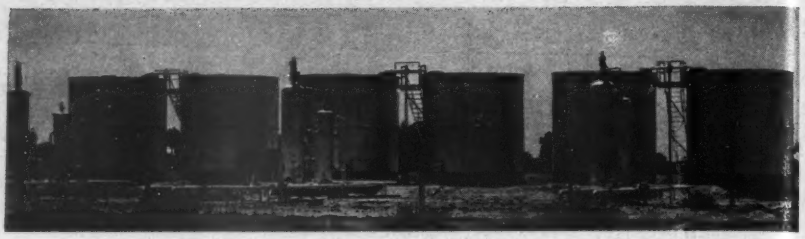
The first two completions after the discovery well limited their penetration to include only the sand found in the Union Oil Kernco 1-34 well. However, the Superior Oil Ruhl No. 1 and Wagner No. 2 wells established the fact that beneath the thin, gritty siltstone horizon in which the discovery well bottomed in, occurred another sand zone which was much coarser in places. The separation between these two sand zones consists only of a 10 to 15-foot fine to pebbly siltstone break, so for purposes of nomenclature it does not appear necessary to include a new name for this lower sand, but it can be possibly identified as being in the lower part of the Rio Bravo in contrast to the upper part of the Rio Bravo, which is the only sand open in the discovery well. The total thickness of this Rio Bravo sand series has not been definitely ascertained to date, but it has a known thickness to date of 326 feet, as found in the Superior Oil Wagner No. 3 well.

Completions to date may be classed under three headings: (1) Those completing in the upper Rio Bravo sand, or sands above the gritty siltstone break that comes approximately 50 feet below the top of the sand. (2) Those completions taking in both the upper part as well as the lower part of the Rio Bravo sand series. (3) Those taking in the lower part alone or that part below the gritty siltstone break which occurs, as mentioned before, approximately 50 feet below the top of the Rio Bravo sand. Of the completions to date, all wells with the exception of one have yielded clean producers. The one wet completion was converted into a clean producer by restricting the producing interval to the upper part of the lower part of the Rio Bravo sand series .

This field is perhaps unique in the fact that formations generally stand up quite well and there has been, therefore, no necessity for protective strings of casing. Work has been done on the use of specially treated muds, and this has materially aided in enabling holes to be drilled without the need of any protective string prior to setting the

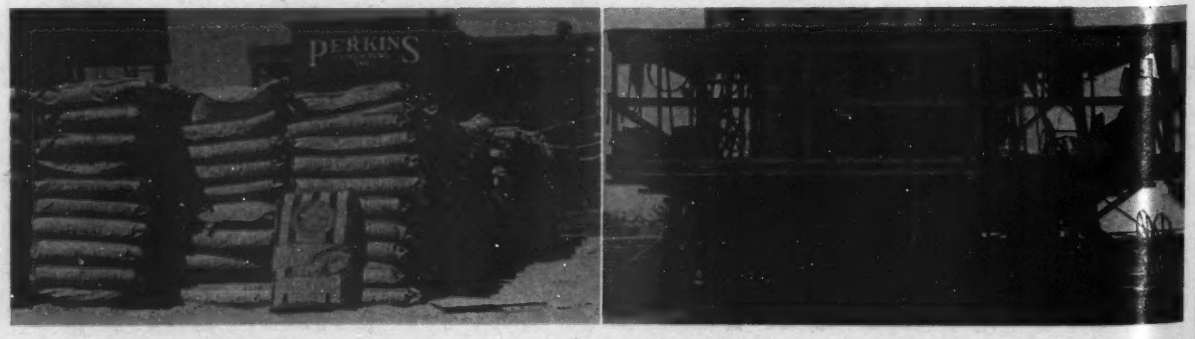


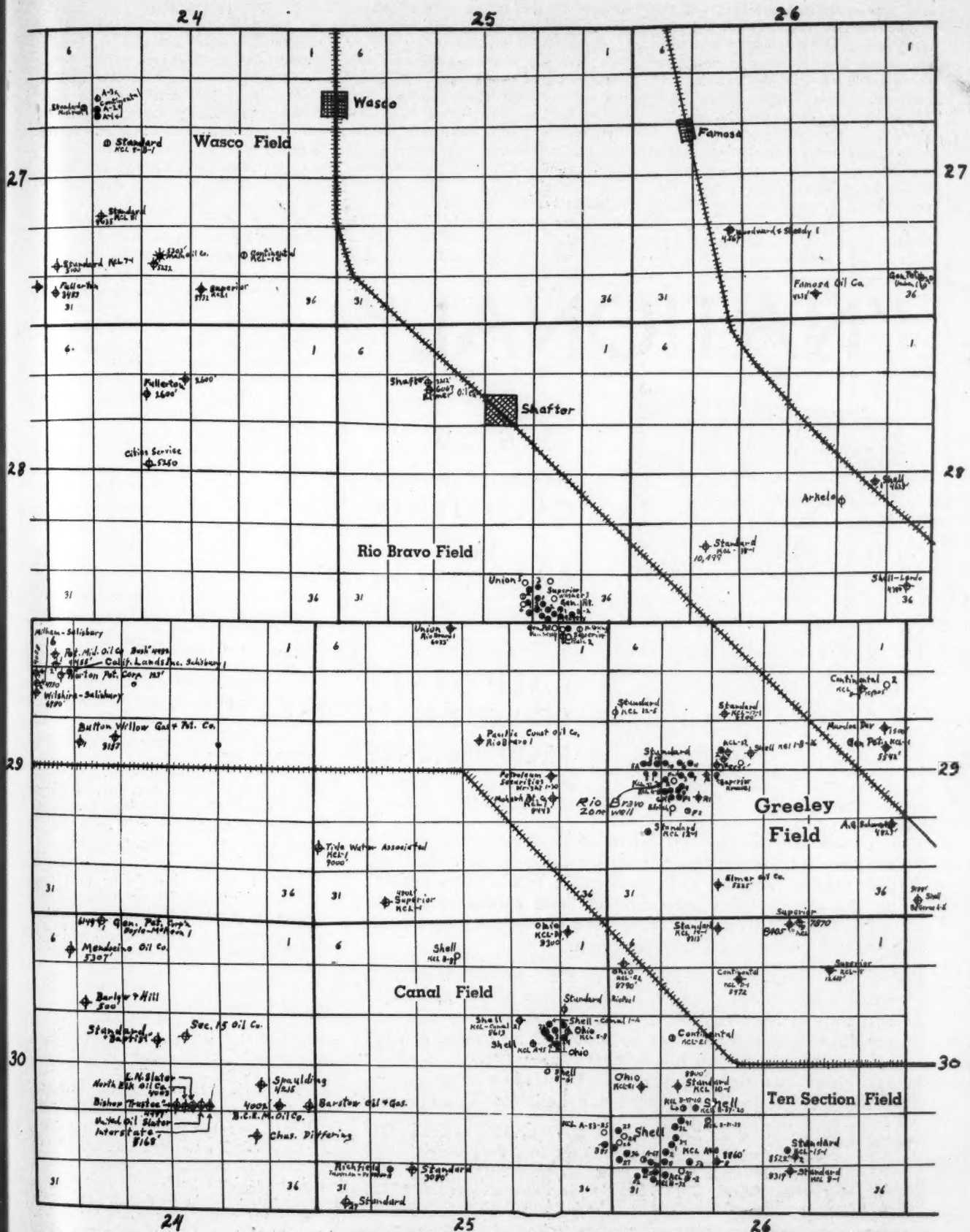
water shut-off string over the Rio Bravo sand. The fact that oil and gas does contaminate the mud after depths of below 8100 feet are reached, caused many of the operators to spend considerable effort in combating this gassy mud problem. At present the general practice seems to take care of this gassy mud problem through the use of a system of inclines and baffles for the mud discharge ditches and the use of specially treated muds.

The casing program for the field does not have a wide variance. A shallow surface string of 13⅜-inch casing is set which varies in setting depth from approximately 1500 feet to approximately 2500 feet, depending upon the feeling of the operator. After this surface string has been set, no other casing is required and the hole is carried down to the water shut-off point generally using successively staggered hole size. The water shut-off strings include the use of 7-inch casing by two operators, 7⅝-inch by another, and combination 6⅝-inch and 7-inch by the fourth. What is believed to be a world's record applies to a string of 7⅝-inch casing which was cemented at 12,200 feet in this field. In the cementing practice of these strings of casing the surface string is cemented solid while the water shut-off string calls for varying amounts of cement depending upon the operator, with as much as 2500 sacks of cement having been used in several instances.

In the matter of liners, the discovery

Below, cement is indispensable in the drill hole, but less is used for foundations as the "skiddable" rig gains vogue. Above right, better mud fluid and control have made deep drilling possible.

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Wasco
Wasco Field
Famosa
Shafter
Rio Bravo Field
Greeley Field
Canal Field
Ten Section Field
Rio Zone
Standard
Superior
Shell
Ohio
Continental
Union
Pacific Coast Oil Co.
Petroleum Securities
Tide Water Associated
Elmar Oil Co.
Mendocino Oil Co.
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Fullerton
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Wilshire-Salisbury
Arkelo
Famosa Oil Co.
Shell-Lando

well was completed barefoot and this is likewise true of many of the other completions. In contrast to this there are several completions that now have liners made of drillable material with perforation sizes varying from 100 to 225 mesh. In one case the drillable blank liner was cemented in the producing zone and the producing interval was gun perforated in order to obtain production. Tubing depths have generally been below 10,000 feet and include in most cases partially, if not all, Grade "D" tubing. In no case has the tubing been placed inside the liner. The deepest string of tubing to date has been one that was hung at 11,343 feet.

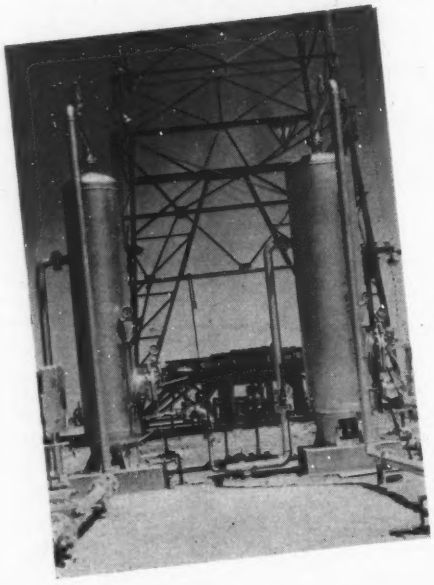
In completion practice it is generally only necessary to replace the mud with water and after several runs of the swab, the wells usually start flowing. This indicates a very high bottom hole pressure, and the field is unusual in the fact that although bottom hole pressures are high, gas-oil ratios of all the wells are comparatively low and vary from approximately 900 to 1600. A pressure drop accompanying production is barely noticeable. In this regard as a case in point, the discovery well while producing at approximately 2500 barrels per day had a tubing pressure of 1735 pounds as against 2100 pounds casing pressure, using 23/64-inch tubing bean. The present production of this well is approximately 500 barrels per day with 2000 pounds tubing pressure, 1900 pounds casing pressure, and 12/64-inh tubing bean.

In the matter of structure, the information gained from the present extent of operations indicates that the predominating feature is a northwest-southeast trending anticline that appears to have a rather sharp crest along the plunge to the southeast, with the fold opening up both to the north and south in going to the northwest. Present operations indicate that the southeast plunge of the anticline has only been uncovered to date with the highest structural portion yet to be uncovered to the northwest of the discovery well.

In the matter of equipment this field is perhaps unique in that it marked the first extensive use of 172-foot and 178-foot steel derricks together with 14-inch by 14-inch steam engines for driving modern, fully enclosed, double chain, oil bath drawworks with almost universal independently steam driven rotary tables. Boilers of 350 pounds working pressure and steam pressure are the common sources of power. In most cases two 15½-inch by 8½-inch by 20-foot mud pumps are used. The motive power for driving the independently driven rotary tables is either supplied from vertical steam engines present on the derrick floor or from submarine engines which are placed on the concrete apron beneath the floor. In numerous instances these submarine engines are of the 12-inch x 12-inch size and also use 350-pound steam pressure. Rotary table speeds are usually quite high and speeds up to 350 to 400 r.p.m. have been used while drilling the upper portions of the hole.

The amount of drill collars used varies considerably with as many as 360 feet of drill collars having been used by one operator in drilling the upper parts of the hole. Fast rotation and stiff assemblies resulting from the use of a large number of drill collars has more or less guaranteed drilling of straight holes, and for normal purposes it is believed that all holes in this field can be considered as straight. Rock bits have been the accepted type of bit used. Drilling times have varied considerably and in contrast to the 221 days required to complete the discovery well, the fastest completion to date in this field has been 61 days. Exceptional drilling time has been made by several holes, and two wells in particular have made over 10,000 feet of hole including cementing of surface string in 30 days.

"NATIONAL"



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Specially Designed Equipment

Drilling and production bosses are very much like doctors in that they must be ready to handle emergencies of the gravest nature 24 hours of the day. It is banal to say that the oil industry offers more new problems every day than a dozen other industries. With all the scientific advancement that has been made in petroleum, dusters are still found in the heart of proven fields, and these dusters may be drilled deeper to make record breaking oil producers; wells still blow out because drillers fail to prepare for the unexpected, and hopeless fishing jobs continue to mark failures in understanding of subsurface conditions.

Because of the differences in conditions in the drilling and producing of different fields, and even of different locations in the same fields, the drillers are largely dependent upon their own judgment until the oil is turned into the tanks and the move is made to another location. Not all wells have the same producing characteristics, and the production men must be capable of sound and prompt decisions in handling a wide range of problems relating to gas/oil ratio, water and/or sand content, high and low pressures, corrosion and erosion, lethal gases, highly volatile ends, emulsions, and the like.

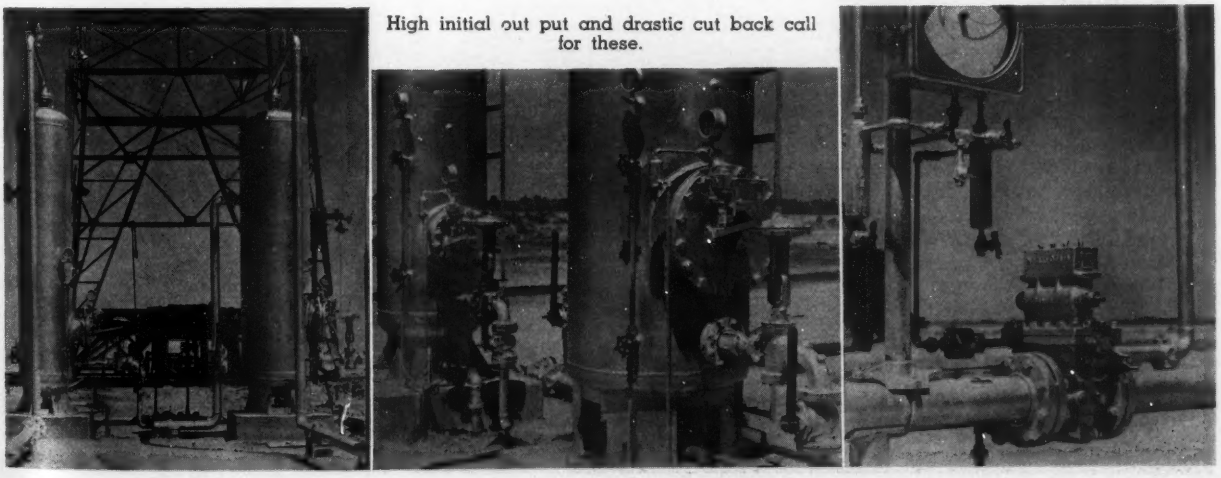
In the pages of this issue of The California Oil World will be found the methods used by operators in the deep San Joaquin Valley fields to assure successful completion with minimum troubles. The remainder of this article will discuss the methods of one operator, George F. Getty, Inc., in the development of their property at Rio Bravo, and will conclude with a description of a particularly effective arrangement for producing wells employed by another company.

George F. Getty, Inc., in Rio Bravo, are making use of new drilling equipment primarily designed to operate at high rotative speeds of the drill pipe, high operating mud pressures to circulate economically at 12,000-foot depths, and high hoisting capacitiy for the retrieving of drill pipe. In order to reduce the number of drill pipe stands to a minimum, some operators use 176-foot derricks, while others adhere to 136-foot derricks.

The Getty corporation, in their Ramsey B-1 well, made use of 136-foot steel derrick with a special large 30-foot base, providing the drilling crew with ample clear floor space. The steel substructures were specially designed. In order to obtain maximum derrick clearance, use was made of the new Regan 6-sheave E.B. crown and narrow type 5-sheave 121-inch traveling block, both of which have 48-inch diameter sheaves. The casing hook was a 300-ton Byron-Jackson. The swivel was a National type M with the new automatically adjusted V type lubricated packing in the wash pipe stuffing box. The body of the swivel is designed to accommodate a large bearing having an automatically induced oil circulation when drill pipe is being rotated. The rotary was an entirely new heavy duty high speed 20½ inch machine developed by National Supply Co. to meet deep drilling and high rotative speeds. This machine embodies many features: the main bearing, like the swivel, has an automatic induced oil circulation, and an oil pump in the pinion reservoir insures a plentiful supply of forced lubrication to the engaging point of the pinion and gear. Rotative speeds obtained with this equipment are ranging over 300 R.P.M. in the Rio Bravo district. The rotary machine is separately driven by an Oilwell No. 7 Vertical (7¾x7-inch) twin steam engine.

The hoisting equipment consisted of a newly designed National No. 23-9 FE-B draw works having three hoisting speeds and powered by an Ajax 14x14 twin engine. The chains were of the double type operating on machine cut and hardened sprockets, all of which were totally enclosed and operated in cascade lubrication system, which insures smoother and quieter operation, as well as longer life of working parts. The draw works was equipped with a hydromatic brake, as well as water-cooled brake rims. The brake rims were 54 inches in diameter, and the distance between flanges was 46 inches, providing wide spacing to accommodate the 1¼ inch casing line. A new auxiliary piece of equipment, referred to as a cat line hoist, was installed on the driller's side to eliminate handling by the driller of the cat line with his hands.

One of the outstanding features of this rig was the hookup of the two National 15½x8½x20 steam slush pumps. These pumps are mounted on steel skids and comprise an unitized assembly, which can be moved and re-assembled to the pipe connections. The steam lines and mud lines are designed and installed



High initial out put and drastic cut back call for these.

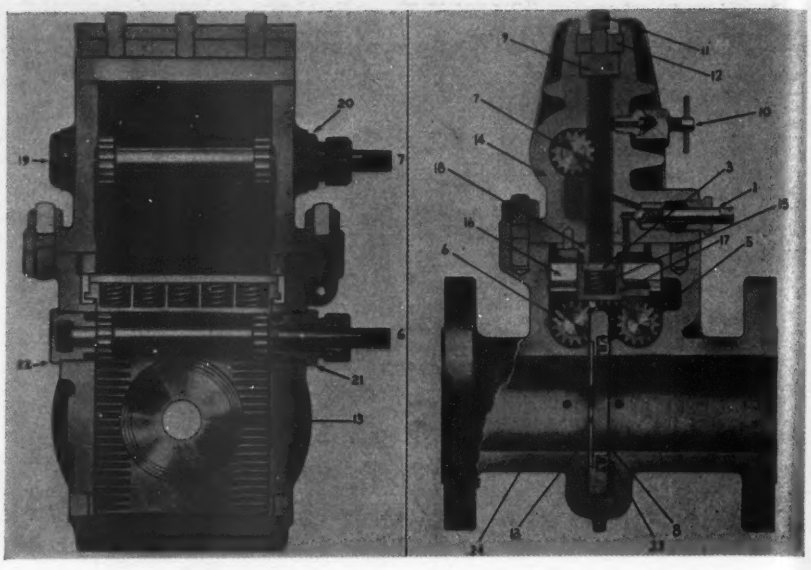
to eliminate sharp bends or turns. The discharge from each pump is into a header. Two lines from this header go to individual standpipes in the derrick. The suction on each pump has an air chamber. The standpipes in the derrick are so constructed as to form an air chamber. This cushions the mud fluid so that pump pulsations are hardly noticeable on the hose.

The operators anticipated a great demand of steam and pressure for operating at high rotary speeds and high pump pressures, and accordingly went to 350-pound superheated steam. A feed water heater pump unit preheats the boiler feet water to 200° F., and provides greater overall efficiency.

High Pressure Separators

Illustrated on this page is a highly interesting arrangement for oil and gas separation under high pressures. The separators, manufactured by American Pipe & Steel Corp., operate thus: the gases are expanded three different times, scrubbed centrifugally against four different walls, scrubbed once through perforations and impinged on walls. The moving gas passes through successive stages of separation, being subject to all these factors and oil that is separated out of the gas is directly drained away and never again enters the path of the moving gas.

The design of these separators, engineers say, makes it possible for a large capacity separator to handle a small volume of oil and gas equally as efficiently as large volumes, there being, it is said, no critical point in its capacity above or below which it does not separate efficiently.



Unique Orifice Fitting makes plate changes easy and trouble-proof.

The manufacturers of these separators are using the Fisher Governor Co. full throttling type of pilot operated liquid level controllers on this equipment. This type of control is especially desirable on high pressure separators, due to the fact that a positive oil shut-off is possible. The specially designed inner-valve is suitable for potential oil tests where the separator and oil valves are sometimes required to pass the maximum capacity, however, it has operated very satisfactory—after the potential has been determined and the production has been cut back to a very small amount of flow, the valve is required to operate at a very minimum amount of capacity.

Results sought in oil and gas separators are: complete separation of oil and gas; provision of dry gas for any use; quiet oil and less gas in stock tanks; low or high pressure operation as desired; large oil and gas capacities; simple, economical and automatic operation; steam coil provision for handling congealed oils, if required.

New Orifice Fitting

On this oil and gas separator installation is found a new orifice fitting which has a number of very interesting features. This is the Daniel Orifice Fitting, designed to measure gas, oil, steam, water, air, etc., and which is so simple in construction that with its use, orifice plates may be inspected or changed in a few minutes by the turn of a speed wrench. Because of its design, when an operator installs the fitting in the line without the customary bypass, he is assured of being able to inspect or change orifice plates at any time without interruption to the flow through the line.

The accompanying sectional drawings illustrate the design and operation of this new type of orifice fitting. The plate lifting method and valve motion eliminates the task of removing the plate carrier by hand. The principle used is the rack and pinion, actuated by the short turn of a speed wrench applied outside the fitting. A 1000-pound pull is easily exerted by this mechanism, more than sufficient to overcome any resistance the valve carrier or plate holder could offer. Jack screws are eliminated.

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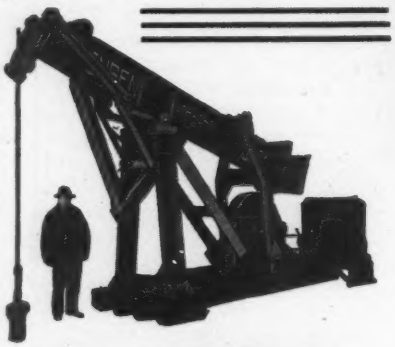
Mohawk Petroleum Changes Headquarters

Main office of the Mohawk Petroleum Corp. were moved to Los Angeles from San Francisco, Sept. 6. Address of the company is now 555 South Flower St. Telephone, MUtual 8192.

California oil industry employment in July reached a total of 52,570, a high point for 1938, according to an estimate of the California Oil and Gas Association. This is 11,680 less than the all-time record of 64,260 for February 1929 and 250 less than for July 1937.



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Los Angeles Visitor

R. G. Hamaker

R. G. Hamaker, vice president and general manager of Reed Roller Bit Co., Houston, Tex., is a visitor this week in Los Angeles.

A.P.I. Long Beach Meet Scheduled for Sept. 13

The Los Angeles Basin Chapter of the American Petroleum Institute's production division will hold its first fall meeting at 7:30 p.m., September 13, at the Shell Recreation Hall in Long Beach. More than 300 production men are expected to attend to hear a paper by Carl Dawson, production engineer for Standard Oil Co. of California, on "Applying Modern Devices to Production Problems".

An interesting movie, "Along the Coast of Mexico," will be shown with narrative by J. R. Pemberton, state oil umpire and adept cameraman. Gene Davis, president of the chapter, will preside.

Attorney General U. S. Webb has filed a petition with the California Supreme Court for a rehearing of the case which awarded title to subsurface mineral rights in the tidelands area to the City of Long Beach.

Aimed to clean up the situation at the Venice oil field, where unused derricks and other structures have been left standing, the Los Angeles City Council on August 22 authorized the city attorney to take the necessary steps for revocation of oil drilling permits where the operators have not lived up to the zoning condition under which such permits were granted. The action also aims for stricter enforcement of the regulations in other oil fields within the city limits.

The University of California Extension Division announces the opening late in September of three courses of particular interest to petroleum engineers.

On Sept. 1, a course in Petroleum Technology met with Paul F. Devine as instructor. William W. Porter will instruct a course in Practical Oil Geology, which opens Tuesday evening, Sept. 20, and Glenn H. Bowlus, is the instructor for a course in Oil Production Engineering, which opens Thursday evening, Sept. 22. All three classes will meet weekly at 7:00 p.m. at the 815 So. Hill street downtown classroom center of the State University's Extension Division and are open to everyone interested.

Standard tries new derrick at Wasco.

California Deep Well Experience Brings

Out Necessity of Proper Mud Control In Overcoming Drilling Troubles

The importance of careful selection of drilling mud has been emphasized by recent deep drilling in California which has shown that the choice of the right drilling mud, even though the initial outlay may be slightly higher, more than justifies itself by the time the well is completed. More than ever before operators are realizing the wisdom of: first, choosing the mud best adapted to the conditions to be encountered; and second, controlling the characteristics and wall-building properties of that mud within very narrow limits.

The record of recent drilling in the state definitely has proved that such care in selection and control pays off in freedom from trouble, earlier completions, and augmented production. As a result, painstaking choice and control of the mud has advanced from the phase of being only laboratory practice and is now standard procedure. It might be said that at last years of research in mud laboratories throughout the nation are beginning to pay off, and that the technically trained mud engineer has assumed a position of high importance in the industry.

Beat Heaving Shales

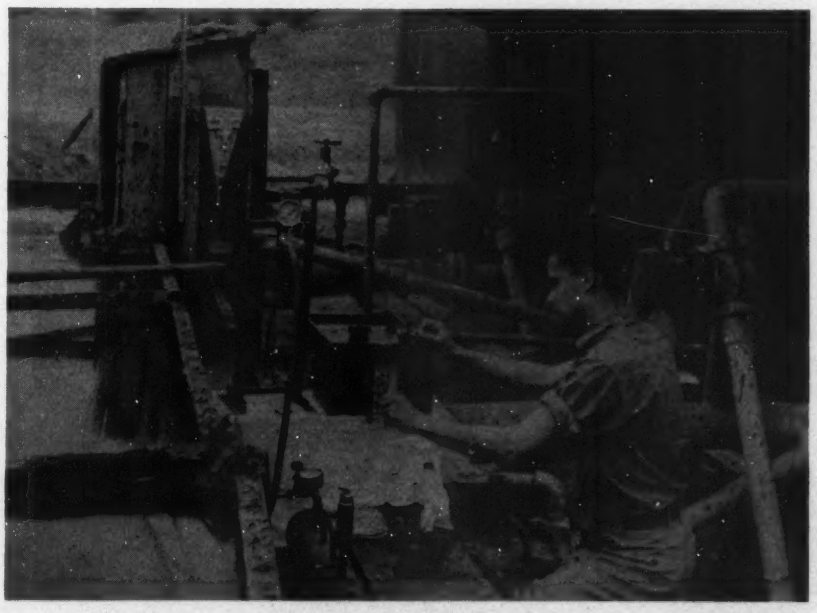
Typical of the conditions necessitating almost meticulous care in the control of muds are the shales encountered in most California deep wells. No longer are these regarded as an almost impregnable barrier to reaching deep production. The use of a mud with just the right amount of unit weight will help to hold this cavey material in place. In addition, if that mud has good enough wall-building properties, it will deposit only a thin cake on the walls of the open hole and thus will reduce to a minimum the amount of water entering the formation from the mud itself. The checking of water intrusion is important because it is from this cause that the hydrous disintegration of many shales takes place. Certain types of shales on being exposed to water tend to swell or slough, and since the open hole may be a point where this swelling or sliding can best be expressed, the phenomenon of heaving takes place. A column of fluid contained in the open hole with enough hydrostatic head may exert enough pressure to hold this disintegration formation in place; but it is readily apparent that if the water intrusion were checked or reduced in the first place by the use of the proper kind of mud, much of the dependence upon the unit weight of mud alone could be eliminated.

Thin Filter Cake

It has been found that an 80 to 90-pound-per-cubic-foot mud will provide sufficient pressure against the formation to hold most of these shales in place. However, trouble has been encountered when native clays have been utilized to obtain this weight. They deposit a thick filter cake which allows a large amount of water filtration to cause the difficulty already outlined. In addition, the thick filter cake materially reduces the diameter of the well, makes for "tight" hole, enhances the possibility of stuck tools, and necessitates frequent reaming to bottom. As if this were not enough, the thick filter cake, obstructing the annular space between drill pipe and formation, augments the swabbing effect when tools are withdrawn from the hole. Unless tools are withdrawn very slowly (sometimes circulation is necessary) the swabbing or suction effect may be enough to cause the partially disintegrated shale to collapse into the hole. Finally, the thick cake easily can be dislodged by the passage of tools, thus further impairing the seal and bringing about the inclusion of much undesirable matter in the mud system.

These troubles encountered when using heavy native clay muds may be attributed to their lack of colloidal matter. The cake deposited by these muds, lacking the necessary concentration of colloidal matter, is too permeable to the passage of water; consequently, more and more material is laid down on the walls of the hole as more and more water is forced into the formation. This deposited filter cake will continue to increase in size until a more-or-less effective seal is obtained. For this reason it is said that the wall-building qualities of a mud are inversely proportional to the size of the filter cake deposited and the amount of water loss. The action in many respects is identical to that which takes place on the face of a bed of filter sand in a city water system. The sand filters out and leaves particles of silt and other material deposited in the form of a cake. As soon as this deposition is sufficient to prevent the passage of water, no more material will be laid down and the filter cake will cease to grow in size.

Results of laboratory research were confirmed when it was found that troubles with tight hole and stuck pipe were practically eliminated by using a mud

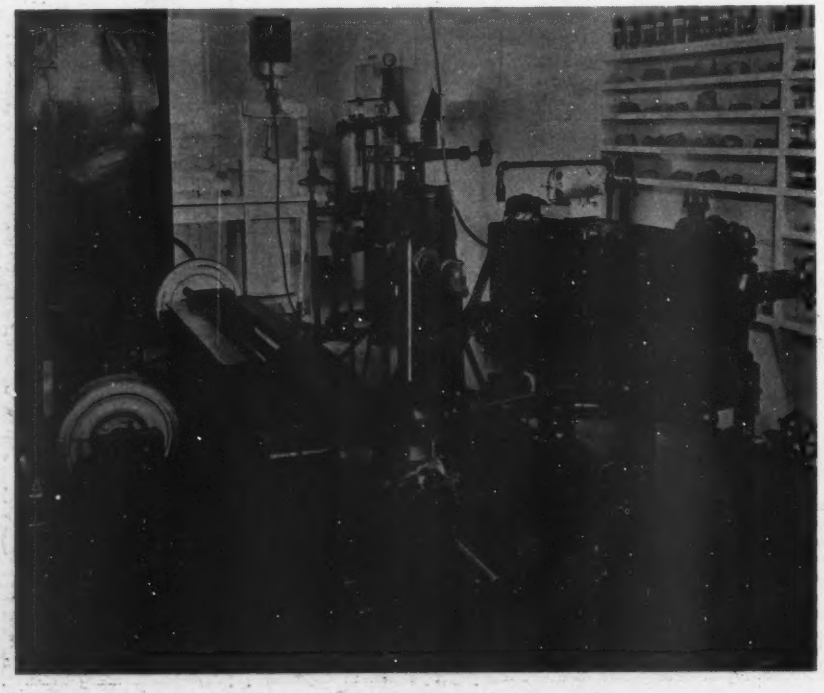


Testing viscosity and wall-building properties of especially prepared drilling mud.

of proper weight made up of concentrated colloidal material (bentonite) and a high specific gravity weighting agent (barytes). This mud, containing a comparatively small amount of colloidally inert solids, deposited a thin, impermeable filter cake and effectively checked water intrusion. The resulting elimination of drilling difficulties was so pronounced and the drilling was so speeded by employing this mud that its use has virtually been adopted as standard practice by operators drilling deep wells in California. With this type of mud as much as 10,000 feet of open hole are carried through formations which potentially are of the caving type. Drillers report the ability to come in and out of hole almost as easily as if it were cased.

Aside from the manifest advantages of such a mud in low water loss, thin, impermeable filter cake, and freedom from drilling difficulties, it has been found that a mud composed of concentrated colloidal material (bentonite) and a high specific gravity weighting agent (barytes) has a longer life and a higher carrying capacity than a mud of corresponding weight composed of native clays. This is explained by the fact that the colloidal mud containing a small amount of weighting agent has a lower percentage of solids—that is, a lower parasite load—than the native mud which obtains its weight and consistency from the presence of a large amount of colloidally inert solids. Therefore, the colloidal mud can be used long after a native mud has had to be abandoned or reconditioned because of the presence of cuttings and other solids which have raised its viscosity and lowered its wall-building qualities beyond safe limits.

The sacks in the foreground above are a familiar sight in fields where the going is tough. Below the mud engineer has become a highly important technical man.



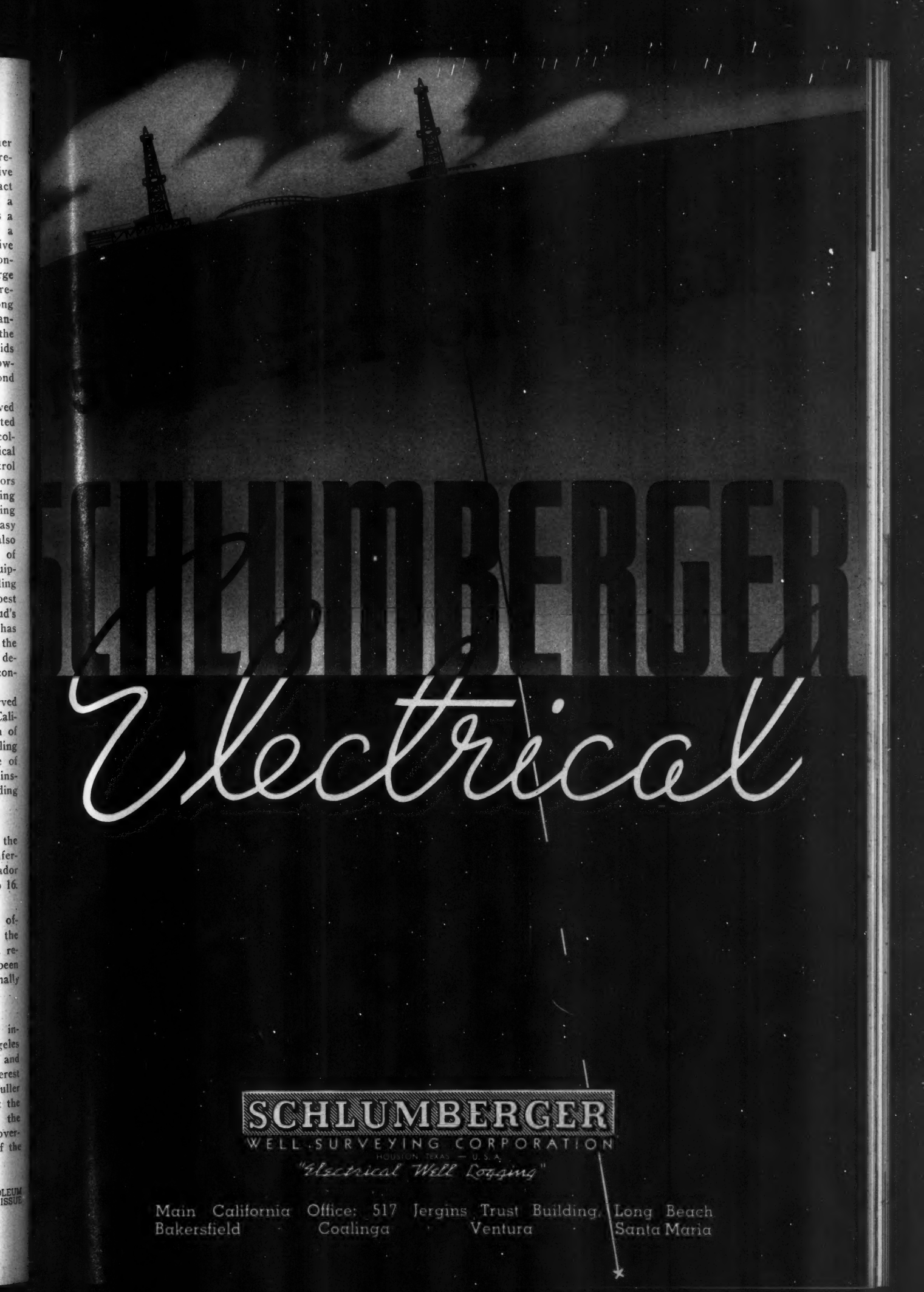
Laboratory results again were proved in the field when it was demonstrated that the mud high in concentrated colloids was more susceptible to chemical treatment and other means of control than were the native clays. Operators found that this made the ask of adapting he mud to meet the needs of drilling through contrasting formations an easy one. Drilling mud control has also been facilitated by the development of standard testing methods and equipment, particularly of the wall-building tester which has proved itself as the best over-all method of determining a mud's performance in the well that so far has been devised, measuring as it does the water loss and thickness of cake deposited by a mud under standard conditions.

The experience as outlined has served to sustain the contention of many California operators that the elimination of a major portion of deep well drilling problems lies in the judious choice of drilling muds, and, afterwards in painstaking control of their wall-building qualities and other characteristics.

Announcement has been made of the Fourth Annual Western Safety Conference, to be held at the Ambassador Hotel, Los Angeles, September 12 to 16.

Interstate Commerce Commission officials announced on August 23 that the date for beginning hearings on the reopened pipeline rate case has been changed from Sept. 14, as originally scheduled, to Nov. 9.

To keep the petroleum industry informed of the work of the Los Angeles County Department of Weights and Measures which is of particular interest to it, County Sealer Charles M. Fuller has published in a separate booklet the section of his Annual Report for the year July 1, 1937 to June 30, 1938 covering the department's enforcement of the Oil and Gas Substitution Act.



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Greeley Field Prolific Deeper Zone Find

Greatly Enhances Outlook for Area

The Greeley Field, 10 miles west of Bakersfield in the San Joaquin Valley, was discovered by Standard Oil Co. of California with its completion of KCL 11-1, Nov. 29, 1936, at a depth of 7807 feet in Section 19, 29S-26E. The Greeley Field discovery well is located nearly 8 miles north of the Ten Section Field discovery well. Although the discovery well in the Greeley Field came in flowing at a rate of 2700 barrels a day of 36.7 gravity oil and 1,940,000 cu. ft. of gas, it was not until recently that the field really came into its own with the discovery of a deeper prolific oil sand.

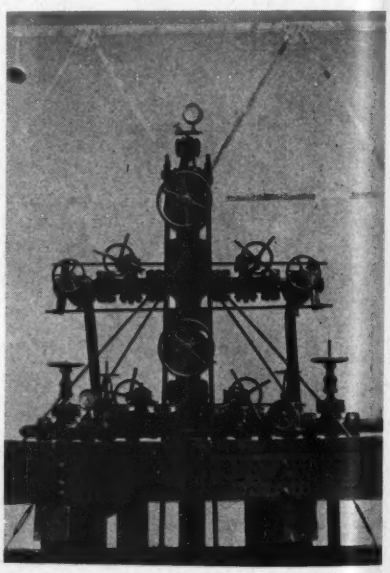
What is now known as the upper producing zone, in which the discovery well was completed, was found to be very lenticular and spotty as an oil producer. This sand is known as the Stevens. Standard's casing program for the upper zone wells is generally as follows: Conductor casing is set at around 1100 feet. This is 13⅜-inch 46 or 48-pound slip joint, Grade C, seamless casing. Over the oil sand as a water string is set 9-inch, 46-pound Grade D seamless casing. The 6⅝-inch or 7-inch string used for the perforated liners is 28 or 40-pound Grade C seamless casing. This casing is perforated with 24 rows, 1½-inch by 80 mesh slots, on 6-inch centers.

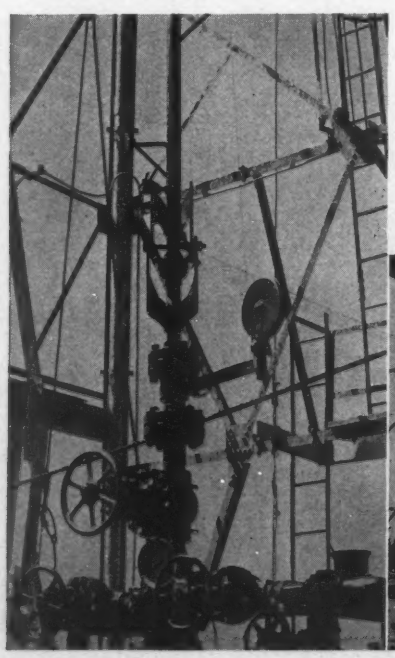
On June 13, Standard found the deep zone bringing in its KCL 11-2 as one of the largest producers in the state in many years. The following announcement appeared in the Second Issue, June (20), 1938, edition of The California Oil World:

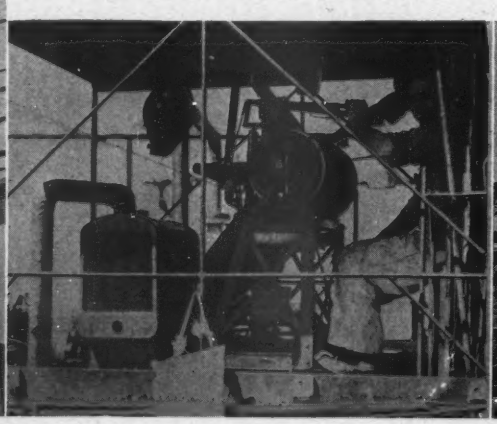
Gauging 14,022 barrels of 35.1° gravity oil in 24 hours, KCL 11-2 was completed from the Rio Bravo zone at Greeley. Drilled by Standard Oil Co. to 11,520 feet, the top of the zone, which is correlative with the Vedder, was cored at 11,419 feet and 6⅝-inch casing was cemented at 11,396 feet before landing a perforated liner on bottom and completing through 2½-inch tubing in the conventional manner. The gas flow accompanying the initial gauge was estimated at 15,000,000 cu. ft. Although a ¼-inch tubing bean and two casing beans, 1½ and 1-inch, were used, the tubing pressure registered 1200 pounds, and the casing pressure 770 pounds. Conforming to curtailment practices, the well is being shut in, and probably will remain so until July 1. While being gradually pinched back, a 24-hour gauge with a ¼-inch tubing bean and a 36/64-inch casing bean was 4260 barrels with pressures of 1425 pounds on the former and 1510 pounds on the later. Gas production was 5,880,000 cu. ft.

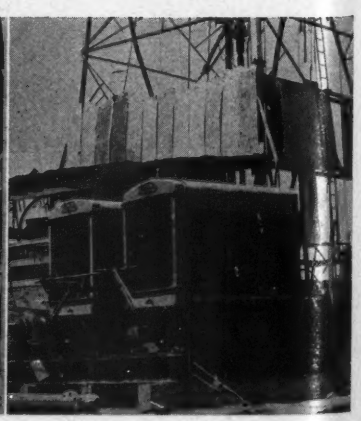
KCL 11-2 is located 990 feet south and 330 feet east of the northwest corner of section 20, 29-26, very nearly in the center of production from the "shallow" Greeley zone, which is encountered at approximately 7800 feet. Repeated tests of this horizon failed to result in any oil recovery and the well stood idle many months until the tremendous possibilities for deeper production were realized after the completion of Union Oil Co.'s Kernco No. 2, at Rio Bravo, four miles northwest.

Drilling activity in Greeley Field in the first week of September was reported by the California Oil World News Service as follows: Standard Oil Co., Sec. 7, 29-26, KCL 12-5, 14½-inch casing landed at 1499 feet, present depth 5959 feet, idle; Same company, Sec. 20, 29-26, Elrich Comm. (El 344) 1, rigging up; Same company, Fleishauer Comm. 2, 8⅝-inch casing landed at 8245 feet, present depth 10,368 feet, in hard shale; Same









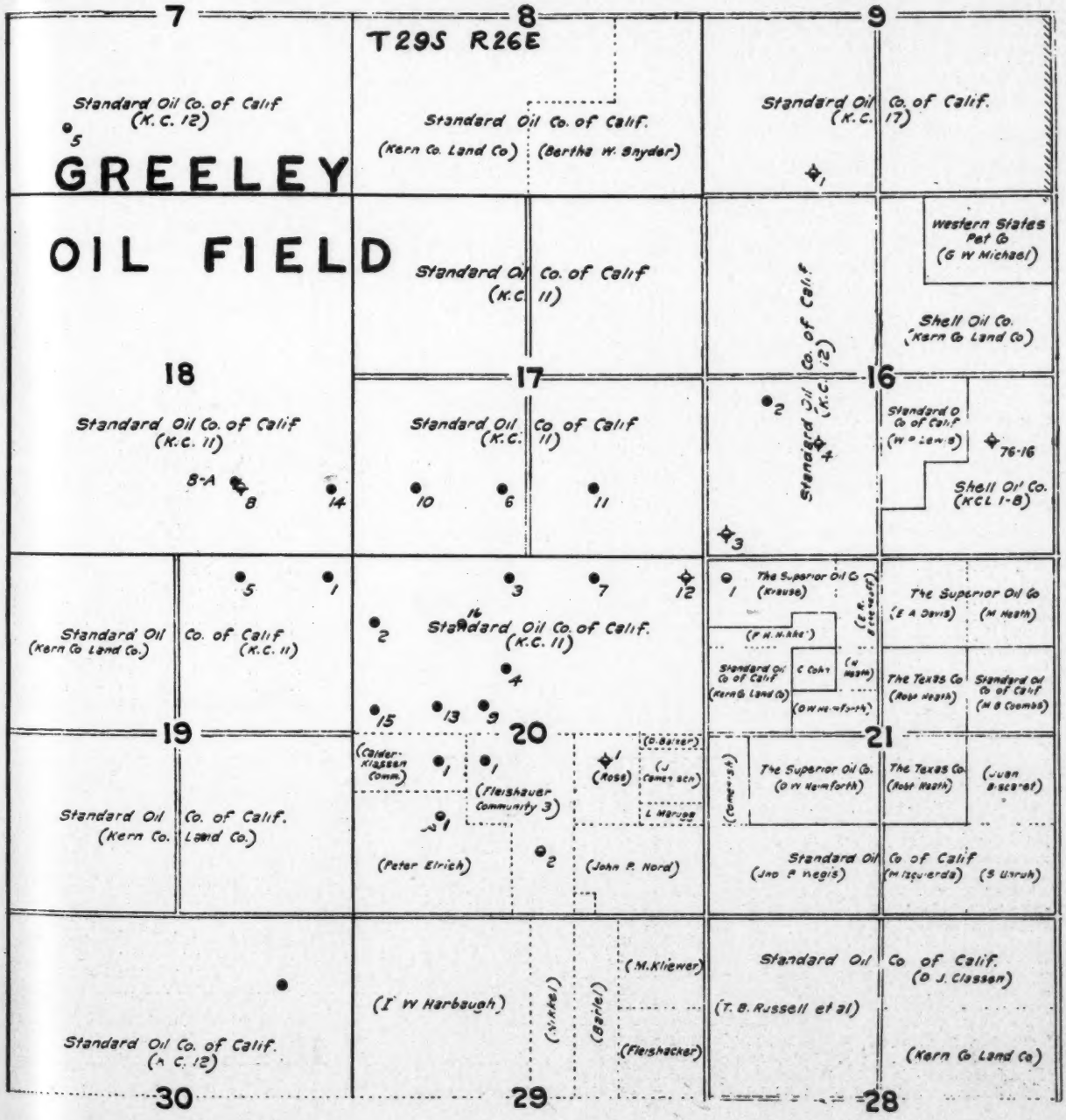
At left is shown the lubricator through which a pressure bomb is run into a Greeley well to be deepened to the lower pay. Center, reeling in. Right below, heavy standbys, and above, Christmas tree for high pressure well.

company, KCL 11-16, grade—location: 990 feet south and 1650 feet of northwest corner of Sec. 20, 29-26) Rio Bravo zone well); The Superior Oil Co., Sec. 21, 29-26; Krause 1, landed 13⅜-inch casing at 1421 feet, present depth 9703 feet in shale and sand.

Taft Chapter Holds Annual Fall Meeting

The Taft Chapter of the California Natural Gasoline Association held its 1938 Hi-Jinks Aug. 26, at the Stockdale Country Club near Bakersfield. Nearly 150 turned out for this party which was highly enjoyed by everyone. The golfers made the most of a very splendid course and it is reported that several actually broke 100! Anyway, after the golf came a sociable hour or so around the improvised outdoor bar. Cold beer was to be had for the asking and few were too bashful to speak up. Then followed a barbecued dinner that was acclaimed "the best ever". The meat was so tender it could be cut with a fork. Huge slices of watermelon finished off the dinner, after which the boys were entertained by El Tad, a magician of considerable ability. After watching his demonstration, some of those present thought decidedly less of their own card playing ability. On into the evening, games of varied nature were the attraction. All in all, it was a "swell party" and much credit is due Jack Lyon, Chairman of the Taft Chapter, and his assistants, for making it a success.

Employees engaged in producing petroleum in California in July 1938 increased 1.8 per cent from the number in July 1937, according to the State Division of Labor Statistics and Law Enforcement. Weekly payrolls were 4.8 per cent higher than in July 1937 and average weekly earnings were greater by 2.9 per cent.


GREELEY
OIL FIELD
T29S R26E
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Standard Oil Co. of Calif (K.C. 12)
Standard Oil Co. of Calif. (Kern Co. Land Co) (Bertha W. Snyder)
Standard Oil (K.C. 17) Co. of Calif.
Western States Pet Co (G W Michael)
Shell Oil Co. (Kern Co Land Co)
Standard Oil Co. of Calif (K.C. 11)
Standard Oil Co. of Calif (K.C. 12)
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Standard Oil Co. of Calif (K.C. 11)
The Superior Oil Co (Krause)
The Superior Oil Co (E A Davis) (M Heath)
Standard Oil Co of Calif (Kern & Land Co)
The Texas Co (Robt Heath)
Standard Oil Co of Calif (M B Coombs)
(Calder-Klassen Comm)
(Fleishauer Community 3)
(Rose)
(Peter Elrich)
(John P. Nord)
The Superior Oil Co. (O W Hemforth)
The Texas Co. (Robt Heath)
(Juan Basoret)
Standard Oil (Jno P Negis)
Co of Calif (M Izquierdo) (S Unruh)
Standard Oil Co. of Calif. (A C. 12)
(I W Harbaugh)
(M. Kliewer)
(Fleishacker)
Standard Oil (T. B. Russell et al)
Co of Calif. (O J. Classen)
(Kern Co Land Co)

PRODUCTION :-: DEVELOPMENT

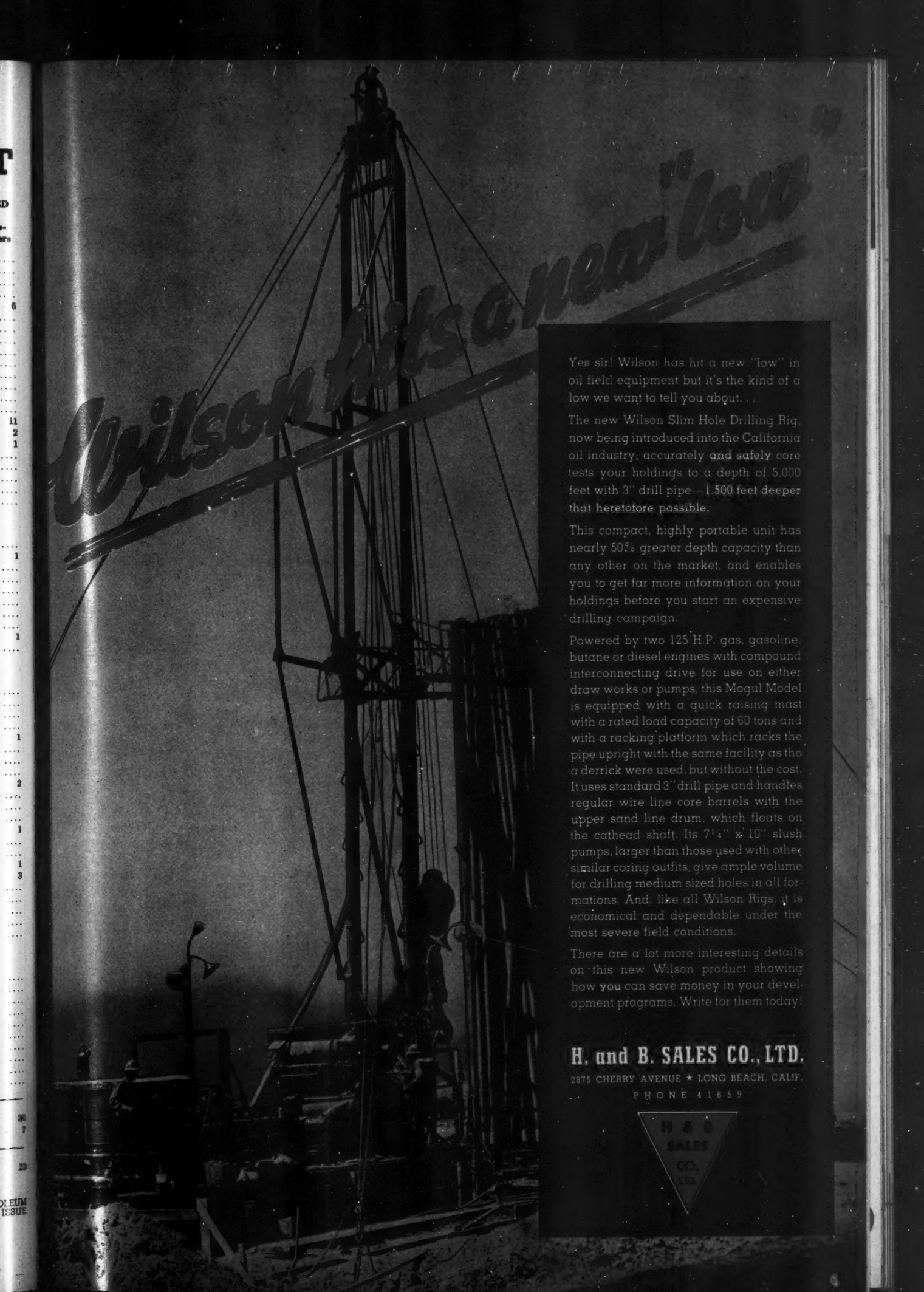
(Figures of Production and Stocks are in barrels of 42 Gals.)

	Total Production July	—DAILY AVERAGE— July, 1938	June, 1938	July, 1937
Group No. 1				
Belridge—North	359,672	11,602	12,078	15,056
Belridge—South	32,031	1,033	1,076	1,024
Canal	75,682	2,441	2,255	.....
Canfield Ranch	3,318	107	95	.....
Coalinga	308,884	9,964	10,173	16,120
Edison	83,418	2,691	2,920	4,352
Elk Hills	326,768	10,541	10,642	10,636
Fruitvale	234,122	7,552	8,852	9,109
Greeley	102,014	3,291	4,140	1,138
Kern River	357,959	11,547	12,170	16,093
Kettleman Middle Dome	1,532	49	50	115
Kettleman North Dome	2,057,265	66,363	67,652	79,567
Lost Hills	114,931	3,708	3,577	3,566
McKittrick	97,063	3,131	3,031	4,153
Midway-Sunset	1,829,450	59,015	59,270	73,953
Mountain View	307,056	9,905	11,487	18,412
Mount Poso	488,556	15,760	17,369	16,933
Rio Bravo	174,841	5,640	4,319	.....
Round Mountain	451,485	14,564	14,480	12,747
Ten Section	215,425	6,949	6,610	2,751
Wasco	11,946	386	391	.....
Wheeler Ridge	9,574	309	307	325
Group No. 2				
Capitan	86,922	2,804	2,853	2,666
Elwood	179,212	5,781	6,667	8,656
Rincon	134,875	4,351	4,043	2,808
San Miguelito	74,367	2,399	2,515	3,609
Santa Barbara	12,558	405	422	651
Santa Maria	369,685	11,925	15,491	13,243
Summerland	860	28	37	34
Ventura Avenue	1,088,926	35,127	35,432	34,732
Ventura-Newhall	156,602	5,052	4,871	4,972
Watsonville	1,085	35	40	60
Group No. 3				
Brea-Olinda	180,346	5,818	5,691	6,750
Coyote—East	105,818	3,413	3,515	4,067
Coyote—West	262,877	8,480	8,744	7,231
Domingues	736,939	23,772	26,688	26,281
El Segundo	292,375	9,431	9,751	8,784
Huntington Beach	1,001,410	32,303	32,374	35,992
Inglewood	439,544	14,179	14,736	15,693
Lawndale	2,798	90	79	82
Long Beach	1,801,768	58,122	58,543	50,617
Los Angeles-Salt Lake	16,821	543	577	646
Montebello	332,304	10,719	11,037	8,765
Playa Del Rey	190,285	6,138	6,312	8,341
Potrero	24,861	802	852	207
Richfield	277,742	8,959	9,238	8,940
Rosecrans	324,925	10,482	7,986	3,395
Santa Fe Springs	1,018,023	32,840	33,731	43,544
Seal Beach	268,172	8,651	8,906	9,290
Torrance	501,949	16,192	14,180	7,591
Whittier	28,687	925	938	895
Wilmington	2,937,807	94,768	93,150	47,663
Total	20,493,544	661,082	672,343	663,736
June	20,170,317	672,343		
Decrease	323,227*	11,261		

*—Dorease.

	July 31, 1938	June 30, 1938	July Changes	Dec. 31, 1937 Reclassified
1. Gasoline-Bearing Crude	33,022,559	33,156,394	− 133,835	29,417,842
2. Non-Gasoline-Bearing Crude	17,408,153	17,431,809	− 23,656	14,384,000
3. Unblended Nat. Gas	3,312,990	3,190,274	+ 122,716	2,001,204
4. Gasoline (not including distributing and service stations)	12,145,707	12,975,245	− 829,538	13,520,678
5. Naphtha Distillates	1,377,637[1]	1,496,083[1]	− 118,446	1,464,577[1]
6. Gas Oil and Diesel Oil	10,017,467	9,669,433	+ 348,034	8,648,990
7. Fuel Oil Residuum	67,079,040	65,252,861	+1,826,179	54,145,388
8. All Other Stocks	6,117,149	5,797,773	+ 319,376	4,457,568
TOTAL	150,480,702	148,969,872	+1,510,830	128,040,247
Estimated amount of unfinished gasoline contained in item 5	1,175,980	1,302,349		1,248,291

	New Rigs Up	Active Drilling	Producers Completed	Daily Initial Output	Active Producing	ABANDONED WELLS Drillers	Producers
Belridge—North	1	4	1	1,935	60	1	....
Belridge—South	..	....	....	....	86	....	....
Canal	3	2	2	5,873	10	....	....
Canfield Ranch	..	1	....	....	1	....	....
Coalinga	6	11	1	6,000	798	....	6
Edison	..	1	....	....	85	....	....
Elk Hills	..	....	....	....	170	....	....
Fruitvale	2	1	2	504	168	....	....
Greeley	..	2	....	....	15	....	....
Kern River	4	3	3	75	1,346	1	....
Kettleman Middle Dome	..	....	....	....	3	....	....
Kettleman North Dome	2	13	3	7,778	188	....	....
Lost Hills	1	2	1	160	233	....	....
McKittrick	..	1	1	225	212	....	....
Midway-Sunset	3	3	5	405	2,406	....	11
Mountain View	..	....	....	....	192	....	2
Mount Poso	2	4	1	245	284	....	1
Rio Bravo	1	8	2	5,225	12	....	....
Round Mountain	1	1	4	1,044	187	1	....
Ten Section	2	4	3	5,269	25	....	....
Wasco	..	3	....	....	2	....	....
Wheeler Ridge	..	1	....	....	28	....	....
Group No. 2							
Capitan	1	1	....	....	48	....	....
Elwood	..	....	....	....	81	....	1
Rincon	..	1	2	840	45	....	....
San Miguelito	1	2	....	....	16	....	....
Santa Maria	..	....	....	....	34	....	....
Santa Maria Valley	5	5	6	3,270	212	3	....
Summerland	..	....	....	....	18	....	....
Ventura Avenue	1	10	1	1,473	221	....	....
Ventura-Newhall	2	9	1	1,692	550	....	1
Watsonville	..	....	....	....	7	....	....
Group No. 3							
Brea-Olinda	..	1	....	....	336	....	....
Coyote—East	..	....	....	....	86	1	....
Coyote—West	1	2	....	....	57	....	....
Domingues	1	3	....	....	193	....	....
El Segundo	1	2	2	1,445	63	....	1
Huntington Beach	..	....	1	85	559	....	....
Inglewood	..	....	....	....	206	....	....
Lawndale	..	....	....	....	6	....	....
Long Beach	1	4	1	175	1,262	....	2
Los Angeles-Salt Lake	..	....	....	....	113	....	....
Montebello	4	10	5	5,228	227	....	....
Newport	..	1	....	....	....	....	....
Playa Del Rey	..	....	....	....	195	....	1
Potrero	..	....	....	....	12	....	....
Richfield	..	4	1	150	297	1	....
Rosecrans	5	4	6	7,969	97	1	1
Santa Fe Springs	..	....	....	....	614	....	3
Seal Beach	..	....	....	....	113	....	....
Torrance	34	36	11	5,224	558	....	....
Whittier	..	....	....	....	142	....	....
Wilmington	15	24	25	30,261	532	....	....
Miscellaneous Drilling	8	47	....	....	....	7	....
Group No. 4—Gas Fields							
Buena Vista Lake	..	1	....	....	1	....	....
Buttonwillow	..	....	....	....	....	....	....
Chowchilla	..	....	....	....	....	....	....
Delano	..	....	....	....	....	....	....
Dudley Ridge	..	....	....	....	....	....	....
Goleta	..	....	....	....	....	....	....
McDonald Island	..	....	....	....	4	....	....
Rio Vista	..	....	1	Gas	14	....	....
Semi-Tropic	..	....	....	....	....	....	....
Tracy	..	....	....	....	....	....	....
July	108	232	92	92,550	13,430	16	30
June	83	219	77	76,936	13,581	18	7
Increase (*Decrease)	25	13	15	15,614	151*	2*	23



Yes sir! Wilson has hit a new "low" in oil field equipment but it's the kind of a low we want to tell you about. . .

The new Wilson Slim Hole Drilling Rig, now being introduced into the California oil industry, accurately **and safely** core tests your holdings to a depth of 5,000 feet with 3" drill pipe—**1,500 feet deeper that heretofore possible.**

This compact, highly portable unit has nearly 50% greater depth capacity than any other on the market, and enables you to get far more information on your holdings before you start an expensive drilling campaign.

Powered by two 125 H.P. gas, gasoline, butane or diesel engines with compound interconnecting drive for use on either draw works or pumps, this Mogul Model is equipped with a quick raising mast with a rated load capacity of 60 tons and with a racking platform which racks the pipe upright with the same facility as tho a derrick were used, but without the cost. It uses standard 3" drill pipe and handles regular wire line core barrels with the upper sand line drum, which floats on the cathead shaft. Its 7¼" x 10" slush pumps, larger than those used with other similar coring outfits, give ample volume for drilling medium sized holes in all formations. And, like all Wilson Rigs, it is economical and dependable under the most severe field conditions.

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LAUGH THIS OFF

We have it on the word of **Warren Nash** that a Wilmington oil worker was arrested in a raid the other night and charged with gambling. The lad swore that he wasn't playing for money—only for poker chips, but the judge was adamant, and fined him ten dollars, contending that chips were the same as money. The astute petroleum person thereupon paid his fine in poker chips.

It is reported by **Lyman Scheel** that in a small oil town not a hundred miles from Los Angeles, a welder committed murder, was caught, and found guilty. There is such a scarcity of good welders in the oil industry, however, says Lyman, that they let him go and hanged a couple of pumpers instead.

These welders, incidentally, sure know all the joints.

Now comes **John Abrams** telling us of a Southern Basin couple who are celebrating a double blessed event. The happy pair who shall be nameless are now the proud parents of twin girls, and if John is correct the young ladies are to be christened Kate and Duplicate.

Then there was the lad who swallowed a nickel recently, was taken to a Whittier doctor, and before the M. D. was through with him had coughed up not only the five cent piece, but three dollars in addition.

And **Hi Winter** recites the case of an ambitious college boy who aspired to a place of prominence in the oil industry. He began right at the bottom of the ladder, mounted steadily rung by rung, and when he got to the top—opened the hatch and gauged the tank.

On the other hand, **Phil Rockfellow,** the Arizona desert rat, insists that he knew an old prospector who was so skinny a rattlesnake missed his leg six times.

We positively refuse, however, to mention the name of the rousty who recently quit his job because the boss asked him to do some heavy lifting, and was seen just last night carrying quite a load.

Skipper Page is highly indignant over the fact that in certain job specifications, the janitors who open and close the windows are designated as draughtsmen.

Skipper, by the way, is also definitely of the opinion that the reason some of these wildcat wells don't produce is that the suckers are on the wrong end.

And says **Lou Kemnitzer** to the exaggerating fisherman, "You ought to sleep well. You lie so easily."

We have just remembered that we forgot to tell you **"J. B." Case's** sad story about the impetuous rig builder. It all happened in the heydey of the wooden rig, and our friend was adzing some beams. He took one especially healthy cut at a 12x6 and the axe flew off the handle just before he did.

The dangerous missile rose into the air and descended squarely on his bean, but caused no damage whatever. He was wearing a safety hat, of course, but that wasn't the reason for his miraculous escape. As a matter of fact, we understand nothing had ever been able to penetrate the dome of this particular rig builder.

Appropos of nothing at all, we might mention that when you pass any home after ten o'clock, see the shadow of a young man and woman on the blind, and then hear a loud smack, you can bet four dollars the young man doesn't live there.

And we are told that **Bill Hopkins** is so thoroughly a product of the Lone Star State that when he gets sad he actually weeps Texas steers.

Bob Wells here steps up to advise us that an oil magnate was recently fired by his concern up in Ventura when it was discovered that he only had a half interest in the business.

All of which concludes another intensely interesting session. Remember, there are two reasons why a man may be refused credit: First—because he is not known, and second,—because he is known.

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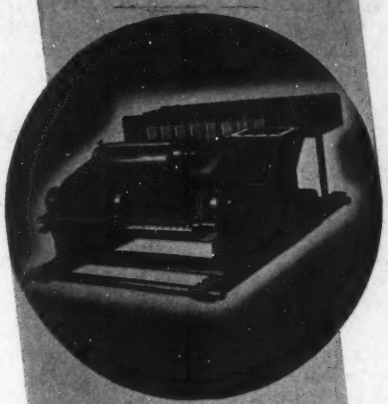
And BAKELITE
For All Internal
Construction.

State Drilling Report

Field	Company	Well	No.	Sec.	Twp	Range
NEW WELLS						
Wilmington	Hollywood Oil Co.	Baxter	4	35	4S	13W
	Allied Petroleum Corp.	Allied	29	35	4S	13W
	Macson Oil Co.	Macson	4	32	4S	13W
Torrance	Coastal Counties Oil Co.		6	23	4S	14W
	R. L. Goets	Monica	1	23	4S	14W
	Kovell Oil Co.	Kovell	3	22	4S	14W
	Kovell Oil Co.	Kovell	4	23	4S	14W
	Silver Strand Oil Co.		2	22	4S	14W
	C. H. Lebow	Ellis	1	23	4S	14W
	J. E. Pettijohn	Pettijohn	1	22	4S	14W
	Krieger Oil Co.	Pierce Comm.	1	25	4S	14W
	Standard Oil Co.	Marble 1	14	22	4S	14W
	Standard Oil Co.	Marble 2	7	22	4S	14W
	Sunny State Oil Co.	Bateman	1	23	4S	14W
	The Caminol Co., Ltd.	Torrance	2-12	25	4S	14W
	Jones Long Oil Co.	Von Trik Lyon	2	23	4S	14W
	A. A. Douglas	Beaudette	1	22	4S	14W
	Sunnyside Oil Co.	Sunnyside Alhau	1	23	4S	14W
	Silverado Oil Co.		1	25	4S	14W
	D & B Oil Co.	Dawn	2	25	4S	14W
	The Texas Co.	Oakley	1	30	4S	15W
Montebello	Standard Oil Co.	Braun	3	2	2S	12W
	Standard Oil Co.	Kaufman Fee	1	2	2S	12W
	The St. Helens Pet. Co., Ltd.	Taylor	2	2	2S	12W
	Standard Oil Co.	Harvey	3	2	2S	12W
	Montebello Reservoir Oil Co.	Reservoir	1	2	2S	12W
	Union Oil Co.	Howard & Smith	3	2	2S	12W
San Diego County	Dauphin Development Corp.	Irwin Kelly	1	16	12S	4W
Imperial County	Max Cawthon	Max Cawthon	3	14	11S	13E
Orange County	H. K. R. Oil Co.		1	35	5S	11W
Coyote Hills	Shell Oil Co.	Kiker	1	21	3S	9W
Cat Canyon	Barnsdall Oil Co	Pezzoni	1	15	8N	32W
Santa Maria Valley	Hancock and Bush	Bradley	3 & 4	26	10N	34W
	Union Oil Co.	Security	2	20	10N	34W
Sunset	Gibson Oil Co., Inc.	Blanck	3	6	11N	23W
Kern County	G. E. Renner & R. H. L. Oil Co.	R. H. L.	2	27	30S	30E
	Trico Oil & Gas Co.	Villard	1	17	26S	28E
Fruitvale	Meridian Oil Co.	Fee	5	23	29S	27E
Round Mountain	Honolulu Oil Corp.		58	20	28S	29E
Rio Bravo	George F. Getty, Inc.	Ramsey	B-3	35	28S	25E
	Union Oil Co.	Kernco	6-34	34	28S	25E
	General Petroleum Corp.	Van Ness	4	2	29S	25E
Greeley	Standard Oil Co.	Elrich Comm.	1	20	29S	26E
Coalinga	Tidewater Assoc. Oil Co.	Fleishacker	1	1	19S	15E
	Petroleum Securities Co.		31	18	20S	16E
Stanislaus County	Orestimba Oil Co., Ltd.	Simon Newman Co. property	1	12	7S	7E
Monterey County	The Texas Co.	Gabilan Mesa	3	12	20S	9E
Buttonwillow Gas	California Lands, Inc.	Salisbury	1	7	29S	24E
Midway	Standard Oil Co.		223	15	32S	24E
	Lilly Oil Co.	Lilly	3	36	32S	23E
	Quality Oil Co.	W. P.	6	27	32S	13E
Belridge	Belridge Oil Co.	19-27 & 31-27		27	27S	20E
Mt. Poso	W. P. W. Petroleum Co.	W. P. W	5	14	27S	28E
Kern River	Helm and Smith	Helm & Smith	7-A	34	28S	28E
Kettleman North	Standard Oil Co.		41	17	22S	18E
	Standard Oil Co.		56	1	22S	17E
Rosecrans	Barnsdall Oil Co.	Trust	6	18	3S	13W
Monterey County	The Texas Co.	Gabilan Mesa	4	30	20S	9E
DEEPEN OR REDRILL						
Huntington Beach	D. D. Dunlap	Huntington Beach	2		6S	11W
	Laco Development Co.	Laco	10		6S	11W
Long Beach	A. S. Johnston Drilling Corp.		30		4S	12W
	Stanton Oil Co.	Hoyt	24		4S	13W
	General Petroleum Corp.	Clock	3	30	4S	12W
	The Texas Co.	Robinson	4	29	4S	12W
	Italo Petroleum Corp.	Gem	1	13	4S	13W
	Italo Petroleum Corp.	Kading	3	24	4S	13W
Santa Fe Springs	The Texas Co.	Batson	3	6	3S	11W
	The Texas Co.	Folx	2	6	3S	11W
Torrance	Imperial Gypsum & Oil Corp.		4	23	4S	14W
	David D. Biehr	Black Gold	1 & 2	6	4S	14W
	Calridge Oil Co.	Meyer	1	23	4S	14W
	Hujo Oil Co.		1	23	4S	14W
	Morton and Elder	Mitchell	1	23	4S	14W
	Rico Oil & Gas Corp.	Victoria	1	23	4S	14W
Midway	Vista Grande Oil Co.	Vista Grande	1	22	32S	24E
Mountain View	Barnsdall Oil Co.	Morris	1	32	30S	29E
	Hogan Petroleum Co.	Porter-Day	3 & 4	29	30S	29E
	Mohawk Petroleum Corp.	Clendenen	8	30	30S	29E
Fruitvale	Western Gulf Oil Co.	Price & Stewart	4	22	29S	27E
	E. L. Tompkins	Moore	1	21	29S	27E
South Mountain	The Texas Co.	Harvey	10 & 11	13	3N	21W
Ventura	Tidewater Assoc. Oil Co.	Lloyd	134	27	3N	23W
Rincon	General Petroleum Corp.	Ferguson	3	8	3N	24W
Coalinga	Shell Oil Co.		14	10	19S	15E
	Standard Oil Co.		41	25	20S	14E
Kettleman North	Standard Oil Co.		25	35	21S	17E
ABANDON						
Los Angeles County	Frank H. Walker	Walker	2	35	5N	6W
Playa Del Rey	J. W. Bonneville	Gragton	1	21	2S	15W
Long Beach	Indiana Drilling Co.	Lyons & Bourdo	1 & 2	24	4N	13W
Santa Maria Valley	Union Oil Co.	Wheat	2	22	10N	34W
Fruitvale	L. W. Harrison	J. C. Maddy	1	23	29S	27E
Kern County	Standard Oil Co.	K. C. 18	1	29	28S	26E
	Federal Drilling Co.	Bass & Goodknight, Glide	3	13	26S	27E
	Tidewater Assoc. Oil Co.	KCL	1	17	26S	25E
Round Mountain	Shell Oil Co.	Olcese Five	2	22	28S	29E
Montebello	Richfield Oil Corp.	Cloeca	2	5	2S	11W
El Segundo	Richfield Oil Corp.	Republic	1	18	3S	14W
	The Texas Co.	Johnson Two	1	17	3S	14W
Richfield	Alford Oil Co.	Robertson	1	29	3S	9W
	Shell Oil Co.	Cuff	1	29	3S	9W
Santa Barbara County	Wilshire Oil Co., Inc.	Hollister	1	35	5N	33W
Monterey County	The Texas Co.	Gabilan Mesa	2	14	20S	9E
	The Texas Co.		1	10	21S	10E
	The Texas Co.	Gabilan Mesa	3	12	20S	9E
Midway	Standard Oil Co.	McNee	59	36	31S	23E
	Standard Oil Co.		81	5	32S	23E
Canfield Ranch	Standard Oil Co.	K. C. 15	2	27	30S	26E
Mt. Poso	W. P. W. Petroleum Co.	W. P. W.	5	14	27S	28E
Coalinga	The Texas Co.		48	6	20S	15E

Summary	Week Ending Sept. 3	Previous Week	To Date This Year	To Date Last Year
Total New Wells	26	34	824	1082
Total Deepened or Redrilled	15	16	554	458
Total Abandoned	14	10	334	349

McNEELY Vibrating MUD SCREEN



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With an average capacity of approximately 650 gallons of drilling fluid per minute, the McNeely Vibrating Mud Screen will handle the output of the largest mud pumps. With a high frequency, elliptical vibrating motion, a uniform intensity of vibration over the entire screening surface is insured. The screening surface is curved (an exclusive feature) which materially increases capacity. Vibrating frame and screen cloth are divided into two sections—thus only one-half the cloth need be replaced at one time. Completely unitized design assures fast and convenient installation or removal in the field.

For a dependable supply of clean, plastic drilling fluid at lowest cost, always use the McNeely Vibrating Mud Screen.

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Field Development

Los Angeles Basin

Wilmington Operators Curtailing Production

With all operators curtailing Terminal zone wells to 400 bbls. per day, output of the Wilmington field is below 90,000 bbls. for the first time in many months. Threat of legal action by the state because of gas wastage quickly lined up interests which formerly did not believe the final 100-bbl. cut necessary to maintain a stable price structure.

Further clarifying the position of the City of Long Beach, the state Supreme Court recently refused a petition for a rehearing of the harbor tidelands case. According to the Harbor Commission, steps will be taken at once to offset wells now producing near the city lands. Although a final decision has not been reached, it is probable the wells will be drilled on a contract basis, the contractor to be remunerated in cash from the sale of oil.

Most important both to the municipality and to private interests is the discovery of Allied Petroleum Corp. No. 22 at the intersection of Seaside Boulevard and Ontario Ave. After passing through a fault at 3300 ft., rich lower Terminal oil sand was topped at 3550 ft. which continued to 4030 ft. where the well was plugged when no further productive sands were cored to bottom at 4350 ft. A liner, 1646 ft. in length and perforated from 2505 to 2890 ft. in the Ranger zone and from 3575 to 4030 in the lower zone, was landed and cemented at the top of the lower perforated section. Preparations are being made to complete.

In the same sector, Superior Oil Co. finished Seaside School No. 1 for 800 bbls.

At the northwest corner of the Wilmington townlot field, Macson Oil Co. obtained another excellent tar zone well in No. C-55-4, located at the intersection of Denni and Avalon. Bottomed at 3070 ft., the well was swabbed in flowing nearly 500 bbls. of 13.6 gravity clean oil. Engineering on Macson's wells is done by the Long Beach firm of Graser & Wells.

Union Pacific, once far and away the largest operator in the field, has only three strings of tools running. Last completion of the company was No. 88, a 400 bbl. Ranger zone well.

R. T. Colter, who with Senator McAdoo operates several Wilmington wells, completed his No. 6 at Broad and "I" Sts. with an initial flow gauging 225 bbls. of 14.5 gravity oil.

Only one new Ford zone well was finished, that being Walter Hughes' No. 1 on the southwest corner of Flint and "F" Sts. A solid oil string was cemented on bottom, 5580 ft., and gun perforated, resulting in a yield first estimated at 350 bbls., clean. Next to be finished in the zone will be Sunray Oil Co. Nelson A-7 which is perforating 7-in. casing cemented at 5625 ft. Southern California Petroleum Co., "W" 1 is deepening below 5100 ft.

Two Ranger zone wells were finished on city property by O'Kane & Brain while General Petroleum completed two and Richfield, Bankline and Hollywood Oil Companies one each in the same horizon.

Ten Seek Lower Zone In Rosecrans Field

Although only one well was completed, drilling wells now number ten in the active portion of the Athens-Rosecrans field. Barnsdall Oil Co., Trust No. 5, finished at 7802 ft. for 1160 bbls., has been beaned back to 800 bbls., the oil being 32.7 gravity and clean. Higgins No. 4, being drilled on contract for the Exeter Oil Co., will be Barnsdall's next completion.

Other wells nearing completion are Union Oil Co., Rosecrans No. 24, Superior Oil Co. Maxwell Comm. No. 10 and Universal Consolidated Oil Co., Trust No. 5 which is coring oil sand below 7330 ft.

LOS ANGELES BASIN WILDCATS

Area	Well	No.	Section	Depth	Status
Bellflower	Clayton, Geo. L., Scott	1	32, 3-12	6897	Idle
Castaic	Royal Land Corp.	1	8, 4-17	1085	Drilling
	DHB Oil Co., Buena Park	1	34, 3-11	2650	Drilling
La Mirada	John McKeon & Assoc. Carmenita	1	21, 3-11	8310	Drilling
Newhall	National Pet. Corp.	1	27, 4-16	2775	Idle
	Palmluck Oil Co.	1	23, 3-16		Rig
Palmdale	Antelope Valley Pet.	1	17, 6-12	50	Idle
Palos Verdes	Gene McLaren	1	27, 4-14	3992	Idle
	Rolling Hills Pet.	1	27, 4-14	5100	Drilling
Pico	British Am. O. P. Co.	1	12, 3-12	4568	Idle
San Fernando	Tidewater Assoc., Porter	1	27, 3-16	3799	Drilling
San Pedro	Grady, R. T.	1	23, 5-14		Foundation
Whittier	Langstaff, Geo. W., Iliff	1	8, 2-11	2181	Drilling
	San Bernardino				
Chino	So. Counties Pet. & Drlg. Co.	1	26, 2-8	960	Drilling
	Orange County				
Bolsa Chica	New Fields Oil Co.	1	16, 5-11		Location
Cosa Mesa	A. V. Oil & Gas Co.	1	16, 6-10	4634	Testing
	San Diego County				
Carlsbad	Dauphin Dev. Co.	1	16, 12-4	390	Drilling

Basin Interest Now On Torrance D & B

With the completion of three new wells in the D & B area, interest of southern California oil men is now centered on the southeast extension of the Torrance field.

California Star Oil Co. contributed the two largest wells in Lermans No. 1 and O'Brien No. 1, both located north of Lomita Blvd. near the intersection of Normandie. The O'Brien well was the first to flow, the effective bottom being 5295 ft. after plugging off gray sand found near bottom at 5325 ft. On test of the 7-in. water string set at 5120 ft., the well flowed at an approximate rate of 900 bbls. a day, but, completed with a perforated liner landed on the plug, the maximum production was only 500 bbls. Lermans No. 1 bottomed at 5283 ft. and with water shut off at the same point as in the first well, flowed initially 525 bbls. Both wells are producing 29.5 gravity clean oil at the settled rate of 425 bbls. a day.

Isco Petroleum Co., Extension No. 1, located at the corner of 252nd St. and Marigold Ave., set 7-in. casing at 5160 ft. and completed at 5313 ft. flowing 250 bbls. cutting 3.0%. This well appears to be good for a settled average of 200 bbls. a day.

By the time these lines are read, two more wells will be on production; R. R. Bush Oil Co., Giminez No. 1 and General Petroleum Corp., Poggi No. 9. The former well set casing at 5070 ft., 190 ft. off bottom while the latter drilled through the oil zone and plugged from 5426 to 5280 ft. before cementing 8⅝-in. pipe at 5120 ft.

Immediately following California Star's proof that the D & B discovery was no fluke, many new projects were started, drilling wells now numbering four and those in the preliminary stages an even dozen by a recent count. Now making hole are J. L. O'Donnell No. 43, located south of Lomita Blvd. on Normandie, Silverado Oil Co. at Marigold and Lomita, D & B Oil Co., Dawn No. 2 at 254th and Petroleum and The Texas Co. which is drilling Oakley No. 1 east of Vermont Ave.

South of the Texas location, F. E. Fairfield has foundations for another well on Oakley property, the most southeasterly in the area. Hoping to extend production half a mile to the east, Sierra Trading Co. is preparing to drill Sierra-Spring No. 1 at the northeast corner of Lomita Blvd. and Figueroa St. In the central portion, A. N. McCrate, Macson Oil Co., Caminol Co. Inc., Rogers Petroleum Co., Ring Oil Co. Padran Oil Corp., California Star Oil Co. and F. E. Fairchild all have one or more projects started while several others have selected tentative locations. Bandini Petroleum Co. will drill a westerly outpost north of Lomita and a quarter of a mile west of Normandie.

Although the wells to date have been of uniform high gravity and clean, production is not large and the sands from which the oil is taken are relatively thin streaks in a brown shale body. This combination of circumstances should serve as a timely warning that overdrilling should be carefully avoided to forestall an unfortunate premature depletion.

Indicating that production may not extend much farther to the south than present drilling wells, D & B Oil Co., Dawn No. 2 encountered first oil sand at 5230 ft., much lower than wells to the north.

Registrations of new passenger cars in July in the first 21 states reporting totaled 46,704, a gain of 5 per cent over the 44,394 reported for June.

Following the agreement on a compromise pollution bill reached on June 7 by a joint committee of Representatives and Senators, the measure was approved by the Senate on June 8 and by the House on June 13.

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Torrance Hot Spot Cools; 17 Completed

Despite the completion of seventeen wells, activity appears definitely on the down grade in the late Torrance "Hot Spot." Failure of Blue Bell Petroleum to develop commercial production on 241st St. stilled hopes for another subsurface uplift under the topographic high upon which the well is located and practically precludes further development to the south along Pennsylvania Ave.

Some impetus was given to the movement east of Narbonne Ave. by the completion of Sol Oil Co. No. 1 pumping 150 bbls. cutting 10%. Only 38 ft. of the deep zone in this well carried oil and the hole was plugged from 5230 ft. to 5144 ft. where the liner was landed. Because of its apparent location down a normal plunge on the structural axis, most engineers believe this section of the field will not warrant intensive development.

Hopes for a drilling revival now rest on Star Petroleum Co.'s Patton No. 1, a "no dope" hole located north of 236th St. east of Narbonne. With the bottom at an unknown point, a formation test was made with packer set at 5260 ft. during which 40 stands of oil were said to have been recovered in a 15 minute period. In the same area, Oggleby & Allison, Inc. are preparing to test Gerner No. 1 after gun perforating a 5¾-in. string cemented on bottom at 5165 ft.

Felix Mallon, Martner No. 1, located on Eshelman near 235th St., is said to have gun perforated casing set on bottom at 5155 ft. and is being put on the pump after swabbing failed to result in a steady flow.

One of the field's best wells was obtained by Standard Oil Co. in Marble 1-12. Located near the apex of the lower fold, the well topped the oil sand at 4750 ft. and completed at 4988 ft. flowing 735 bbls. of 26 gravity clean oil. Standard, after entering late in the game, has three other wells drilling.

Though several good wells were completed on the south side of 235th St. near Pennsylvania, they seem to mark the southern limit for flowing producers, those beyond that point generally being brought in on the pump.

Packard Petroleum Co., most successful of the independent operators, obtained better than average yields from its wells No. 4 and 6, both on 235th St. west of Pennsylvania Ave.

Well Celebrates Black Gold Days

On the eve of Huntington Beach's annual three-day Black Gold Days celebration, a well belonging to D. D. Dunlap caught fire and burned creating a spectacle the town celebration found hard to equal.

In the townlot portion of the field, Mar-Rico Oil Co. recompleted Elyod No. 1 at 5690 ft. pumping at a rate estimated to be over 425 bbls. a day.

H.K.R. Oil Co., drilling in the Five Points area, is below 4000 ft. and should soon encounter the sands productive in the Delaney and J. E. F. wells. Both of the latter wells are reported to be pumping 100 bbls. a day.

Two Operators Score at W. Montebello

With flush production topping the 1000 bbl. figure, West Montebello Oil Co. completed its Montebello No. 1 in the Sixth zone as one of the fields better producers. Indicating that the 71 ft. of sand below the water string contains no water, production is entirely clean and tests 35.8 gravity. Accompanying the oil is 1,500,000 cu. ft. of gas. Total depth is 6268 ft.

Taking 290 ft. of the Fifth zone to 4650 ft., St. Helens Petroleum Co. brought in Egleston No. 2 flowing 980 bbsl. cutting 10%.

With bottom at 6254 ft. and casing set at 6140 ft., Union Oil Co. completed Wilcox No. 2 in the sixth zone. Initial production through a 28/64 in. bean was 610 bbls. of 35 gravity oil and 860,000 cu. ft. of gas.

New Fields Company To Drill Bolsa Chica

According to an announcement of the New Fields Oil So., the much prospected Bolsa Chica area between Huntington Beach and Seal Beach is soon to have another test. The company, which has arranged for Bob McKeon to do the drilling, has selected a location near the southwest corner of sec. 16, 5-11, north and east of the juncture of Bolsa Chica Ave. and Smeltzer Road.

Announcing 50% Cut In Drilling Bond Rate

The Oil Producers Agency has been advised that the rate on single completion bonds has been reduced 50%, effective immediately, thus bringing the cost of these bonds down to $25 per well, as compared with their former cost of $50, and their more recent cost of $40 per bond.

This latest reduction marks the success of an Agency drive for a lower premium for these state bonds, a drive which was undertaken after research indicated that the bonding companies' losses on this type of bond were well below two per cent.

Aliso Canyon Test Swabbed, No Oil

Tide Water Associated's Aliso Canyon test, Porter No. 1, located in sec. 27, 3-16, west of San Fernando, proved something of a disappointment when, on production test, it failed to show much oil. With bottom at 3799 ft. and 9⅝ in. casing cemented at 3626 ft., a perforated liner was landed and the fluid swabbed to 3650 ft. When allowed to stand a few hours only muddy water and a little oil entered the hole. The liner has been pulled and according to late reports, the well is being deepened below 3850 ft. in hard siltstone showing oil and gas.

Notice of a further hearing on pipe line rates to be held in Washington on September 14 has been issued by the Interstate Commerce Commission.

The payroll index figure for producing in March, 1938, was 68.0, a decrease of 2.3 per cent from February, 1938, and an increase of 6.4 over March, 1937.

California Crude Oil Production

For Two Weeks Ended August 27, 1938

Field	August Daily Quota	Average Daily Production	Excess
San Joaquin Valley			
Belridge—North	14,950	11,906	*3,044
Belridge—South	1,790	1,042	*748
Buena Vista	17,330	17,744	414
Canal	2,845	3,048	203
Coalinga—East-West	16,510	10,093	*6,417
Coffee Canyon	3,110	3,369	259
Edison	2,560	2,739	179
Elk Hills	8,050	1,0638	2,588
Fruitvale	6,835	7,480	645
Greeley	3,570	3,141	*429
Kern Front	8,100	7,609	*491
Kern River	5,405	2,590	*2,815
Kettleman No. Dome	63,380	65,199	1,819
Lost Hills	4,255	3,390	*865
McKittrick	3,445	3,343	*102
Midway	44,126	43,861	*265
Mount Poso	14,540	16,111	1,571
Mountain View	9,220	10,265	1,045
Rio Bravo	3,190	8,310	5,120
Round Mountain	1,0035	10,730	695
Ten Section	7,485	7,496	11
Other Fields	2,576	2,799	223
TOTAL	253,307	252,903	*404
Coastal Counties			
Elwood	5,310	5,507	197
Rincon	2,995	3,599	604
Santa Maria	8,410	7,578	*832
Santa Maria Valley	19,065	6,626	*12,439
Santa Paula-Newhall	5,100	5,425	325
Ventura Avenue	32,125	34,133	2,008
Other Fields	5,570	5,642	72
TOTAL	78,575	68,510	*10,065
Los Angeles Basin			
Alamitos-Seal Beach	7,970	8,457	487
Brea-Olinda	8,505	5,765	*2,740
Coyote—East	2,765	3,314	549
Coyote—West	8,100	8,223	123
Domingues	21,095	25,565	4,470
El Segundo	6,310	7,836	1,526
Huntington Beach—New	13,530	17,755	4,225
Huntington Beach—Old	13,495	14,882	1,387
Inglewood	13,980	14,771	791
Long Beach	45,215	57,176	11,961
Montebello	6,530	6,788	258
Montebello-West End	2,693	6,540	3,847
Playa del Rey	5,505	6,167	662
Richfield	7,920	8,282	362
Rosecrans-Athens	5,725	13,487	7,762
Santa Fe Springs	29,900	32,643	2,743
Torrance	11,091	17,302	6,211
Wilmington	66,455	95,967	29,512
Other Fields	2,670	3,197	527
TOTAL	279,454	354,117	74,663
STATE TOTAL	611,336	765,530	64,194

—*Shortage.

San Joaquin Valley

Planning Many Valley Wildcats

Despite the many important discoveries of the past three years, California oil companies are looking to the future and are continuing their persistent efforts to develop an adequate reserve supply of crude. Reflecting this attitude, wildcat activity in the San Joaquin valley continues at a brisk pace, and in the opinion of competent observers, will probably tend to increase, regardless of the number of new fields discovered. But little market threat is seen in present exploratory work os operators are well aware of overproduction dangers and it is confidently believed that new production will conform to the strict curtailment now almost universal in valley fields.

Seeking a northwest extension of the Ten Sections-Canal producing area, Shell Oil Co. has built a derrick to drill KCL No. B-87-4 near the southeast corner of sec. 4, 30-25. This location is approximately two miles northwest of nearest production and is on a direct line with the California Lands, Inc. Salisbury test, drilling at 1700 ft., and the Buttonwillow gas field.

In the North Belridge area, General Petroleum Corp. has started work on St. Helens No. 2 adjoining No. 1 in sec. 12, 28-20. The first test was drilled to 8683 ft. where the lower portion of the hole was lost and the well plugged to 1400 ft. where small production was obtained.

Half a mile from the nearest production, Julius Fried is preparing to drill an outpost well in the Midway-Sunset area, the location being in the northwest ner of sec. 34, 32-24.

A new operationg combination, G. E. Renner and R. H. L. Oil Co., have spudded a test well five miles southeast of the Edison field in sec. 27, 30-30. The organization's home offices are in San Francisco.

Interest Sustained In Northern Wildcats

Completion of a commercial gas well near Willows in Glenn county marked the discovery of another new gas field in California and did much to sustain interest in northern exploratory work. The new producer, drilled by Ohio Oil Co. on Willard property in sec. 18, 20-2w, was plugged from 6013 ft. to 2360 ft. and brought in flowing at the rate of 25,000,000 cu. ft. daily. The company's first well, Willard No. 1, blew out of control while pulling pipe from bottom at 4004 ft. Derrick is up for a third well.

Shell to Drill B-61 at Canal

Determined to locate the limits of the Canal field, Shell Oil Co. is starting an outpost well, KCL B-161, located 330 ft. south and 1650 ft. west of the northwest corner of sec. 23, 30-25. Situated south of present production, this well is expected to go a long ways toward determining the relationship between this field and Ten Sections.

Shell's KCL A-45, sec. 14, is being readied for completion after coring the top to the Stevens sand at 8090 ft.

Only other active wells are Standard's Rio Fee No. 1, drilling at 6390 ft. and Ohio Oil Co.'s KCL No. E-8, coring below 7700 ft.

General Pete, Union Rio Bravo Completions

Rio Bravo, most active of the deep valley fields, recently witnessed the completion of two more large wells. In sec. 35, 28-25, General Petroleum Corp. obtained 2763 bbls. a day through a ½-inch bean from Wagner No. 1. A drillable liner, 270 ft. in length and containing 207 ft. of perforations, was hung two feet off bottom at 11,508 ft. and 2½-in. tubing was run to 11,115 ft. With the bean cut to 12/64-in., the well is now flowing 507 bbls. of 37 gravity clean oil under 1700 lbs. pressure.

Union Oil Co., which discovered the field last November with Kernco No. 1 in sec. 34, finished No. 4 in the same section with an initial flow of 2691 bbls.

SAN JOAQUIN VALLEY WILDCATS

Area	Well	No.	Section	Depth	Status
	Fresno County				
E. Coalinga	Pure Oil Co., SPL	1	31, 18-17	12018	Drilling
Clovis	Central Valley Oil Co.	1	1, 12-20	608	Idle
Jacalitos Hills	Jacalitos Pet. Co.	1	14, 21-15	7138	Drilling
	Dauphin Dev., Ragan	1	30, 21-14	1632	Drilling
Mendota	Pierce, Cyrus, Shorb	1	16, 14-12		Location
Panoche Hills	Panoche Hills Oil Co.	3	12, 14-11	300	Idle
	Kern County				
Belridge	Abbott, F. E.	1	18, 27-19		Rig
	General Pet. Corp., St. Helen	2	12, 28-20		Location
Buena Vista	Ohio Oil Co., KCL	A-8	32, 31-26	11186	Testing
		F-1	10, 31-25	4990	Drilling
Buttonwillow	Calif. Lands, Inc., Salisbury	1	7, 29-24	2010	Drilling
Canal	Shell Oil Co., KCL	B-87	4, 30-25		Rig
Devils Den	Gibson Oil Co., Alferitz	3	14, 25-18	1100	Drilling
	Goodrum, Geo., Baron	1	24, 25-18	1210	Idle
Dominion	Master Pet. Co., U. S.	1	34, 26-28	825	Idle
Elk Hills	Richfield Oil Corp.	KCL-W 1	32, 30-25	7610	Drilling
Edison	Johnson, G. W.	B-P 1	33, 29-30	1162	Cmg. Csg.
	Renner & R.H.L. Oil Co.	1	27, 30-30	250	Drilling
Fruitvale	The Texas Co., C.W.L.	1	7, 29-27	9780	Drilling
	Continental Oil Co.	B-2	12, 29-26	9020	Drilling
Grapevine	Hall-Baker Co., Reserve	33-2	33,11-19	4615	Idle
	Petrol Corp., Reserve	33-5	33, 11-19	4607	Idle
	Richfield Oil Corp.	KCL-1	28, 11-20	6313	Drilling
McFarland	White, C. C. Armstrong	2	9, 26-26		Rig
Mt. Poso	Federal Drilling Co., Glide	3	13, 26-27	2210	Abandoned
	Trico Oil & Gas Co., Willard	1	17, 26-28	1560	Drilling
	W. P. W. Pet. Co.	5	14, 27-28	1247	Abandoned
Poso Creek	Reynolds Oil Co.	1	20, 27-27	2855	Idle
Richgrove	Dilamar Oil Corp., Quinn	1	15, 25-27	2956	Pumping
		3	15, 25-27		Rig
San Emigdio	Shell Oil Co.	KCL 4-26	26, 11-22	10374	Abandoned
Strand	Continental Oil Co.	E-1	17, 30-26	8575	Idle
Union Ave.	Richfield O. Corp.,Union Ave.	1	6, 30-28	5198	Drilling
	Kings County				
Alpaugh	Tri Counties Oil Co., Olson	1	10, 23-22	7769	Idle
Dudley Ridge	Falcon Oil & Gas Co.	1	24, 23-20	6500	Idle
Pyramid Hills	Pyramid Prod. Co., Retherford	1	27, 24-18	3090	Idle
Kettleman	Temblor Oil Co., Bunting	1	25, 23-18	9138	Plug 7815—Idle
Tulare Lake	Irvine, Athalie	1	11, 24-20	2210	Drilling
	Tulare County				
Alpaugh	Sullivan & Youngdahl	1	33, 23-23	2732	Idle
Ducor	Nelson & Davison	1	1, 24-27	1400	Drilling
Trico	Caminol Co., A. O. G.	3	29, 24-24	8390	Drilling

in 15 hours. The ½-in. bean has been reduced to 12/64-in., restricting the flow to 463 bbls. of 38.8 gravity oil, and 523,000 cu. ft. of gas. Flow pressure and casing pressure balance at 1850 bbls. Depth of this well is identical with that of General's, 11,510 ft., but only 185 ft. of sand is open.

Superior Oil Co., whose drilling speed records in this field remain without serious challenge, has attained the distinction of possessing the world's second deepest well in Helbling No. 1, southeasterly project in sec. 1, 29-25. Following its usual custom on exploratory wells, the company is releasing no information, but seemingly reliable reports place the bottom at 14,018 ft. where it should be well into Eocene formations.

Within the proved area General Petroleum Corp. is drilling two wells, Wagner No. 4 below 10,500 ft. and Van Ness No. 4 at close to 200 ft. The latter well is an outpost located in sec. 2, 29-25. Geo. F. Getty, Inc. is drilling its third project on the Ramsey lease below 2210 ft. Superior Oil Co. is drilling Ruhl No. 2 at 9100 ft. and is rigging up No. 3 while Union Kernco No. 34-5 is below 9800 ft. and 34-2 is redrilling below 10,000 ft. No. 34-6 is preparing to spud in.

KNDA Up 3635 Bbls. With No. 27-16Q

Completing No. 27-16Q, Kettleman North Dome Association increased its production by 3635 bbls. of 35.3 gravity clean oil and 3,360,000 cu. ft. of gas. Located in sec. 16, 22-18, the well was finished at 8442 ft., the oil string containing perforations below 7585 ft. No. 43-20Q has been bottomed at 8914 ft. and is scheduled as the Association's next completion.

In sec. 7, 22-18, Standard Oil Co. is preparing to complete No. 74-7Q from a total depth of 8895 ft. The company has three other strings of tools working and is planning to double the number.

Superior Oil Co. is redrilling Huffman No. 4 at 5000 ft. with the intention of carrying the well to the Avenal sand.

Four Wasco Wells Below 11,500 Ft.

Unique in the annals of the industry is the present situation in the Wasco field where four wells are drilling, all at depths ranging from 11,500 ft. to 13,000 ft. Deepest of the group is Continental's KCL A-3-8, sec. 8, 27-24, one location north of the discovery well, A-2-8, which entered the Rio Bravo sand at 13,100 ft. The well is correlating very nearly the same as its neighbor and should encounter the sand at about the same level.

Three in Greeley To Rio Bravo Pay

With the Rio Bravo zone definitely in mind, Standard Oil Co. is preparing to drill No. 16 on its KCL No. 11 lease in sec. 20 of the Greeley field. Located 990 ft. south and 1650 ft. eact of the northwest section corner, the new well is between KCL No. 11-2, only deep zone well yet completed and Fleishaur Comm. No. 2, now drilling below 10,500 ft. Elrich Comm. No. 1, just spudded in, will be tried out in the Stevens sand where it will be completed if possible.

In the northwest corner of sec. 21, 29-26, Superior Oil Co. is deepening Krause No. 1 below 10,000 ft. in an attempt to extend the lower zone beyond the eastern limits of upper production.

Richfield Completes In North Belridge

With an initial production of 1292 bbls., Richfield Oil Co. recently completed its second North Belridge well flowing clean oil testing 33 gravity. Bottomed at 8375 ft., the well was swabbed in with the hole open below the shoe of the 8⅝-in. water string cemented at 8240 ft.

Texas Company, who opened the north extension a year ago with Martin No. 1, has just swabbed in No. 4 with the initial flow gauging 3852 bbls. clean. Total depth is 8513 ft. with 7-in. casing cemented at 8266 ft. and tubing hung at 8439 ft.

Tide Water Associated Oil Co. has two wells drilling while the field's largest operator, Belridge Oil Co., has three.

Shell Abandons San Emigdio Wildcat

Latest and deepest of the long series of test wells drilled in the San Emigdio area has just been abandoned by the Shell Oil Co. at 10,374 ft. The well, known as KCL 1-A4, was drilled in sec. 26, 11-22 and though it established a depth record for the immediate vicinity, only nominal showings were encountered.

San Miguelito Wells Nearing Completion

Two wells in the San Miguelito field are approaching completion depths with Continental's Grubb No. 9 slightly in the lead, now coring the Grubb No. 3 zone at 5888 ft. after topping sand at 5600 ft. C.C.M.O. Co.'s Oakgrove No. 7 is drilling ahead in sandy brown shale below 5350 ft.

Ten Sections Adds Two Big Producers

Shell Oil Co., exclusive developer of the prolific Ten Sections field, added two more wells to its long list of enviable completions. Brought in from a depth of 8200 ft., KCL B-2, sec. 32, 30-26, established a potential of 2493 bbls. of 32.3 gravity oil and 2,000,000 cu. ft. of gas. In the adjoining section 31, KCL No. B-2 flowed at the rate of 1801 bbls. on initial gauges. Both wells are now shut in to relatively small yields.

Having had no success with formation tests, preparations are being made to set casing in KCL No. B-67, out post well in sec. 20. Total depth is 8375 ft. and the top of the Stevens zone is believed to have been found at 8070 ft.

The company has four other projects under way, with A-67 in sec. 30 the nearest to completion.

Monterey Exploration Spuds at Edison

First new well in several months in the Edison field is Monterey Exploration Co.'s Nichols No. 3 in sec. 14, 30-29. Having but just spudded in, the project is located 330 ft. south and 1650 ft. east of the west quarter corner of sec. 14, 30-29.

Ring Completes Two In Mount Poso

Ring Oil Co., whose success in developing the northern extension to the Mount Poso field has been nothing short of phenominal, is completing two more wells in sec. 29, 26-28. Bowles No. 7 is bottomed at 1740 ft. and has a 7-in. perforated liner extending into the 8⅝-in. water string cemented at 1710 ft. Rodgers-Jones No. 3 has 30 ft. open to bottom at 1690 ft.

Honolulu Round Mt. Produces 375 Bbls.

Continuing with the development of its proved holdings, Honolulu Oil Co. finished well No. 49, sec. 20, 28-29, with a potential of 375 bbls. daily and a cut of 10%. Nearly 400 ft. of formation is open to bottom at 1804 ft. No. 58 in the same section found the top of the Vedder at 2090 ft. and is preparing to test after plugging off gray sand cored near bottom at 2133 ft.

Brown & Safford Drilling Co. had not encountered oil sands to the last reported depth of 2275 ft. in Newberry No. 1 in sec. 32, 28-29.

Fisher Governor Head Dies at Orange, Aug. 19

J. H. Fisher, president of the Fisher Governor Co., died Aug. 19, at St. Joseph's Hospital, Orange, Calif.

Mr. Fisher had been in ill health for a considerable length of time. In fact ever since he moved out to Newport Beach from Marshalltown approximately a year ago, his health had gradually declined. However, at times he showed considerable improvement; but his ailment was so serious that medical science was not able to overcome it.

His body was accompanied back to his home town, Marshalltown, Iowa, by his widow and children, where burial took place Aug. 23.

Mr. Fisher had been the active head of the Fisher Governor Co. for over twenty-five years and had built the organization from a very small specialty concern to the largest of its kind of today and all of his employees and agents respected him and admired him very much.

The only branch office that the Fisher Governor Co. have is at Los Angeles. This office was opened in January 1931 and Mr. Fisher has always given his personal attention to this expansion of activities. On his various visits to the Pacific Coast, it was always his desire to cover the entire territory and visit his customers as well as his friends.

He is survived by his widow and four children. Mrs. J. H. Fisher and Martha Ellen Fisher living at Newport Beach; J. W. Fisher being connected with the Fisher Governor Co. at Marshalltown, Iowa; Mrs. R. L. O'Toole of Marshalltown, Iowa, and Allen Fisher, who attends Cornell University.

Richfield Net Profit Million First Half

Richfield Oil Corp. and subsidiary companies report for the six months ended June 30, 1938, consolidated net profit, after all charges including estimated provision for Federal Income taxes, of $1,005,383, equivalent to 25 cents a share on the 4,010,000 shares of common stock outstanding. Inasmuch as the company was reorganized March 13, 1937, comparable for corresponding period a year ago is unavailable.

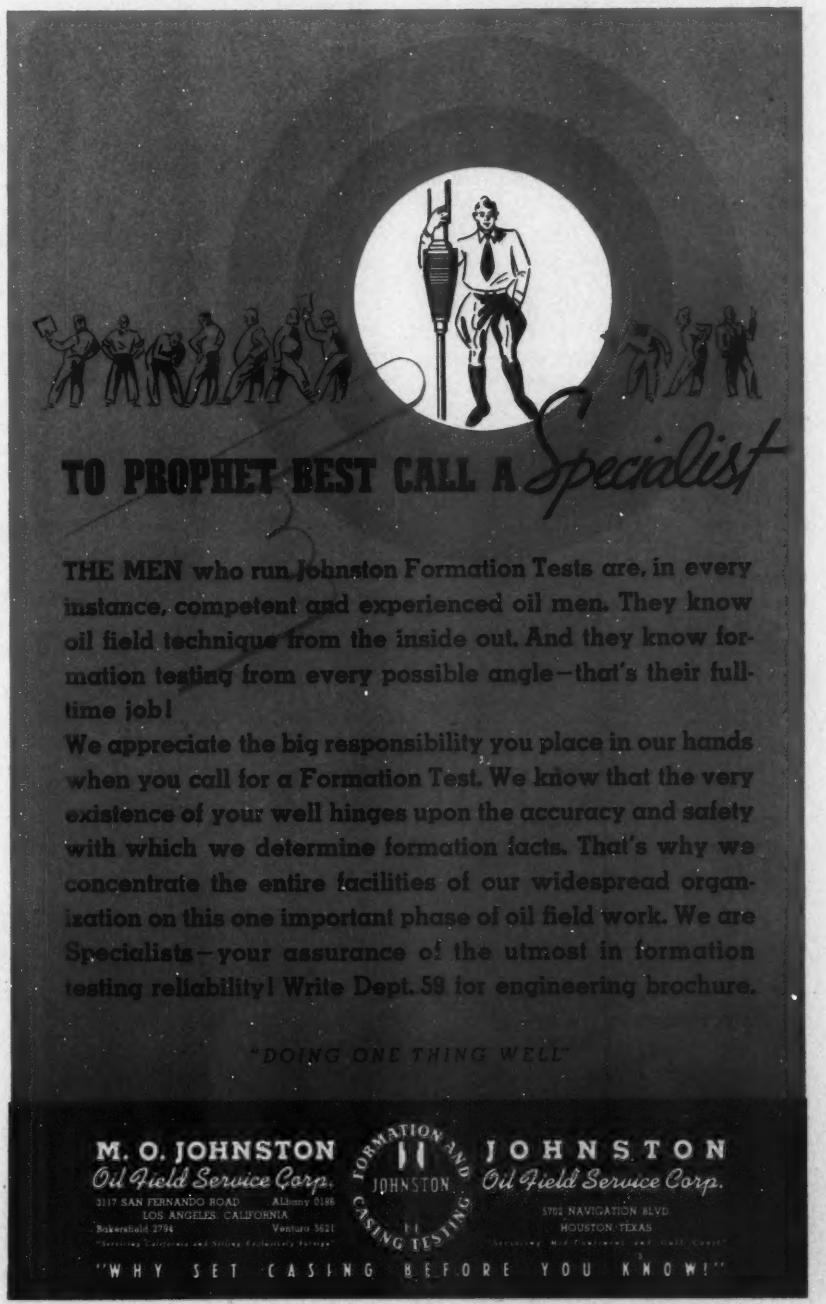
Sales, excluding State and Federal gasoline and oil taxes, amounted to $20,566,489. Other operating revenue during the period totaled $882,657 bringing total operating income to $21,449,146.

Cost of sales and services aggregated $12,920,766 while selling, general and administrative expense amounted to $4,491,925. Provision for depreciation, depletion and amortization increased to $2,425,561. Allowance for dry hole losses and abandonments was placed at $349,140.

After deducting these charges together with $22,791 of non-operating charges and $198,580 for interest and amortization of debenture discount, net income amounted to $1,040,383. Estimated provision for Federal Income taxes totaled $35,000, leaving a let profit of $1,005,383.

The consolidated income account, being an interim report, was not audited by independent public accountants and, as certain accounts are maintained on an annual basis, is subject to possible end-of-the-year adjustments. No provision was made for surtax, if any, on undistributed profits.

Proposed increases in rates for the transportation of petroleum products between California and Arizona opened in Los Angeles on August 22 before Walter M. W. Splawn, chairman of the Interstate Commerce Commission, and Claude R. Porter, commission member.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Coastal District

Three Wells Find, One Misses, Gatchell

Most important developments of the past two weeks in the East Coalinga Eocene Pool were the finding of the prolific Gatchell sand by three wells and the lack of it in another. Most interesting of those in the sand is Superior Oil Co.'s Hight No. 1 located near the southwest corner of sec. 8, 20-16, a mile east and a little north of the discovery well, Gatchell No. 1-18F. Although Superior refuses to release information beyond giving the depth as 7999 ft., it is confidently believed that oil sand has been found as the hole is being reamed and casing is on the rack. Calculations by independent engineers indicated the Eocene should have been encountered at approximately 7830 ft. and the top of the Gatchell sand at 7980 ft.

Petroleum Securities Co. is preparing to complete Grimes No. 88-12C, the last reported depth being 6942 ft. with the probability that only a few feet more would be taken. Entering the Gatchell sand at 6758 ft., a total of 184 ft. of friable, gray oil sand with strong gasoline odor has been recovered.

Third Petroleum Securities Co. well to encounter the sand was well No. 7-7F located due north of Gatchell No. 1-18F. This well topped the first of "Green Sand" at 6590 ft. and the main sand at 6690 ft. correlating 21 ft. higher than No. 88-12C. Casing has been cemented at 6684 ft.

Confusing the general field picture, Universal Consolidated Oil Co., Leavitt-Hintze No. 1, located near the south quarter corner of sec. 12, 20-15, encountered the Green Sand at 6305 ft. but found the Gatchell sand had graded into shale. Now drilling in Moreno (Cretaceous) below 7790 ft., the project is headed for the sand member which, years ago, is said to have produced 1000 bbls. a day in the Blue Goose well in the Oil City field. This sand is believed to lie approximately 850 ft. below the top of the Moreno and should be topped at about 8000 ft.

Further complications were added when Standard Oil Co.'s No. 82-13C, one location south and west of the discovery well, was found to have entered the Kreyenhagen nearly 100 ft. higher than expected. This may be due to a thickening of that shale body, or it may be another puzzle that only time and the drill can solve. Meanwhile the well is being cored ahead below 6000 ft.

Medford Oil Co., Goetz No. 1, sec. 10, 20-15, has overcome its crooked hole difficulty and is drilling in hard Kreyenhagen shale at approximately 6000 ft. This well is far enough away from the Universal well so that it is possible that the shales found in that test may have graded back into productive sands.

Conclusive tests have proved the upper sands to be nonproductive, Texas Co. is preparing to deepen Mohawk No. 19 in sec. 12. In the same section, Tide Water Associated is drilling Guardian No. 66 below 5828 ft.

NORTHERN COUNTIES WILDCATS

County	Well	No.	Section	Depth	Status
Colusa	Amerada Pet. Co.,Calif. Lands	1	34, 16-1	6485	Drilling
Glenn	Ohio Oil Co., Willard	1-A	18, 20-2	6014	Completed
Monterey	The Texas Co., Lewis	1	1, 19-5	2770	Drilling
San Mateo	Wilshire Oil Co., Cowell	2	20, 6-5		Location
Solano	Richfield Oil Corp., Potrero	1	10, 4-1	4084	Drilling
Stanislaus	Orestimba Oil Co.	1	12, 7-7	250	Drilling

COASTAL COUNTIES WILDCATS

Area	Well	No.	Section	Depth	Status
Santa Barbara County					
Carpinteria	Carpinteria Oil Co.	1	32, 4-5	2460	Idle
Carreaga	Douglas-Stratton Oil Co.	1	8, 8-33	6240	Idle
Cat Canyon	Standard Oil Co., Los Flores	1	27, 9-33	6556	Pumping
Gaviota	Gaviota Oil Co., Hollister	1	35, 5-33	3215	Idle
Gato Ridge	Barnsdall Oil Co., Mag.	5	9, 8-32	3035	Idle
	Pezzoni	1	15, 8-32	1925	Drilling
	Petrol Corp., Mag.	5–11	9, 8-32	4515	Drilling
Los Olivos	Continental Oil Co., Laguna	2	25, 8-31		Rigging up
	United Western, Bradley	1	15, 7-30	3279	Idle
Lompoc	O'Donnell, J. E. Helen	1	8, 7-33	4025	Drilling
Orcutt	Warren Deuel, Garrett	1	12, 9-34		Rig
San Luis Obispo County					
Edna	Loma Grande Oil Co., Lewis	1	28, 31-13	1200	Drilling
Elk Horn	Calif. Pet. Prod. Co., Irons	1	19, 10-24	1710	Drilling
	Lee, Harry Defiance	1	7, 32-22	215	Drilling
	Western Plains Oil Co.	1	7, 31-21	4010	Idle
Huasna	Hancock O. Co.,Scherer-Dickes	1	30, 12-33	5593	Testing
Paso Robles	Vanguard Oil Co., Clark	1	26, 27-14	4950	Drilling
Ventura County					
Ojai	High Mesa Oil Co.	1	16, 4-22	1700	Redrilling
	Holly Dev. Co., Macrate	1	27, 4-23	4786	Idle
Red Mountain	Martin, J. W.	3	15, 4-21	1250	Drilling
Sespe	McKinnis, Chas., Cosley	1	14, 4-19	675	Idle
	Merchants Pet., Cochran	8	1, 4-20	935	Drilling
	Speik Oil Co.	1	33, 5-19	3440	Idle
	St. Louis Oil Co.	1	1, 4-20	420	Cleaning out
Shiells Canyon	The Texas Co., Shiells	135	4, 3-19	2119	Drilling
South Mt.	Clipper Oil Co.	1	17, 3-20		Rig
	The Texas Co., Richardson	5	13, 2-21	6500	Drilling
Tar Creek	Section 20 Oil Co.	1	20, 5-19	2145	Testing
Timber Canyon	Stallings, Senter, Ahlberg	1	24, 4-21	1445	Testing
Ventura	Ventura Drilling Co.	1	10, 3-23	330	Drilling

Las Flores Well Increases to 808 Bbls.

With production now up to 808 bbls. daily, Standard Oil's new Coastal discovery well, Los Flores Land & Oil Co. No. 1, is recognized as the most important well of the year in Santa Barbara county. Building from the initial of 550 bbls., production has steadily increased, a pump being used to agitate the flow. Gravity of the crude has increased slightly to 15° while the cut remains the same at less than 1.0%. Production is from 1045 ft. of Monterey brown shale open to the plugged depth of 6440 ft.

Two Drillers At Gato Ridge

Drilling activity in the Gato Ridge field is now limited to two wells. The Petrol Corp., Magenheimer No. 5-11, is below 4515 ft. in sec. 9,8-32 and should soon be ready to set pipe. Pezzoni No. 1, sec. 15, is Barnsdall's only drilling well, Magenheimer No. 5, sec. 9, having been shut down at 3035 ft.

Awaiting release of a drilling crew, Continental Oil Co. has not yet spudded in La Guna No. 2, wildcat project located in sec. 25, 8-31.

Barnard 18 Extends Ventura Production

An important extension of the large and prolific Ventura Ave. field was made by the recent completion of Barnard No. 18 by General Petroleum Corp. at the initial rate of 1700 bbls. per day. Bottomed at 8410 ft., 707 ft. of 5¾-in. liner was landed which included spot perforations below the shoe of the water string at 7750 ft. Using a 20/64-in. bean, production is now cut back to 650 bbls. a day, the oil being 31.5 gravity and free of water. Properties benefitted by the well are the Shell Edison lease and tracts held by Bolsa Chica Oil Co. and Alliance Petroleum Co.

Tide Water Associated Oil Co. is yet the most active in field development, having five wells drilling and one on production test.

Lloyd Corp., Well No. 2, located on the east plunge of the structure, is drilling hard formation below 5000 ft. Production is not expected in this semi-wildcat short of 6500 ft.

Shell has two active projects on the Edison lease and one on the Taylor.

Merchants Petroleum Co., Cochrane No. 8 is drilling below 950 ft. in the Sespe district.

Two Attempting Mesa Completions

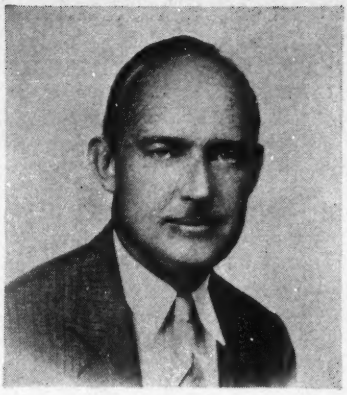
Finding nothing of importance in the lower Sespe, Tran-Oceanic Oil Co. plugged its Mesa deep test from 3680 ft. to 2502 ft. where a blank liner has been cemented preparatory to gun perforating.

Anacapa Oil Co. redrilled Lowe No. 1 to 1905 ft. and after repairing the 6⅝-in. water string, obtained 50 bbl. production cutting 50%. The well sanded up within a few hours and is being cleaned out for further setting.

Santa Maria Activity Remains at Low Ebb

Activity in the Santa Maria Valley field remains at the low ebb of recent weeks with only two wells drilling and a third preparing to spud. R. R. Bush Oil Co. and Hancock Oil Co. are drilling Bradley Lands No. 3, sec. 26, 10-24, below 4100 ft. while Union Oil's Vincente No. 4 is approximately the same depth in sec. 21. The latter company is rigging up Security No. 2 in sec. 20.

Two old wells are back on production after reconditioning work. Ido J. Banducci's G. & B. No. 1 is pumping 500 bbls. after deepening to 5493 ft. and Greathouse Oil Co., Frontier No. 1, is on for 250 bbls.



Robert R. McCartney

According to a recent announcement by J. B. O'Connor, vice-president of Clark Bros. Co., manufacturers of engines and compressors, Robert R. McCartney is now handling export and eastern coastal sales and engineering matters for the company.

Before joining Clark Bros. in April of this year, Mr. McCartney had been associated for a number of years with Gulf Oil Corp. in their New York office. Prior to his employment with Gulf he spent ten years in the pump and engine division of the Worthington Pump and Machinery Corp., after graduating from the Pratt Institute of Mechanical Engineering in 1924.

Mr. McCartney has his headquarters in the New York office of Clark Bros. Co.

Flows 2570 M.C.F. Luton-Bell No. 19

After cementing 4¾-in. casing on the deepened bottom of 5690 ft., and perforating up to 5485 ft., Barnsdall Oil Co. recompleted Luton-Bell No. 19 on the gas lift flowing 25 bbls. of 40 gravity oil and 2,570,000 net cu. ft. of gas. At the present time there is no drilling work in the Elwood field.

Huntington Beach Slant Drill Bids

Bids for slant drilling state owned pools at Huntington Beach are now being considered by engineers for the State Lands Commission. Highest bid received was from the Southwest Exploration Co., a group of oil interests, who has secured easement to slant drill from littoral upland owners in Huntington Beach. The bid offers to pay the state the highest oil royalties it has ever received. A certified check for $15,000 accompanied the bid.

Terms of the bid provide for a scale of royalties to the state which increase according to the average daily production of each well drilled under the agreement. An average production of 500 barrels daily will yield the state a royalty of 47.04 per cent. A minimum royalty of 12½ per cent is established for 80 barrels a day or less, increasing on a sliding scale to a maximum of 66 per cent for 5000 bbls. and more.

It provides for immediate drilling of wells to offset wells in the uplands that are now draining the states tideland pools. The bid was made by authority of the State Lands Act of 1938, passed by a special session of the legislature in March of this year. The bid calls for immediate drilling operations and a minimum of 87 wells.

The State Lands Commission is composed of Director of Finance Stockburger, Lieutenant Governor George J. Hatfield and State Controller Harry B. Riley. Consulting advisor to the Commission is Dr. E. K. Soper, Associate Professor of Geology at the University of California at Los Angeles, an outstanding geologist and petroleum engineer of recognized standing. Littoral owners are: Huntington Beach Co., Pacific Electric Railway Co., Pacific Electric Land Co., Bolsa Land Co., Bolsa Chica Gun Club, and Standard Oil Co. of California.

Covarrubias No. 1-28 Flows 525 Bbls. Daily

Another good well was completed by Shell Oil Co. on its Covarrubias lease in the El Capitan field when No. 1-28 came in flowing 525 bbls. of 21 gravity clean oil. Production is from 106 ft. of oil sand streaked with shale which is open to bottom at 1673 ft. No. 1-29 has been spudded on the same property.

Loma Grande Spuds Wildcat Near Edna

Loma Grande Oil Co., a Santa Barbara concern, has spudded in its wildcat well in sec. 28, 31-13 near Edna in San Luis Obispo county. The acreage on which the well is located was obtained from Continental Oil Co.

Hancock Hausna Test Disappoints

Results so far in Hancock Oil Co.'s Huasna test well, Scherer-Dickes No. 1 have been disappointing. Bottomed at 5593 ft. and plugged to 5080 ft., the well was swabbed for several days lowering the fluid to 3300 ft. and though much oil was in evidence, it seemed far from being a producer. The tubing has been pulled and the hole is being bailed in an attempt to clean out heavy mud.

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Oil Men's Calendar

September

14-16—Santa Barbara, Calif., annual meeting Pacific Coast Gas Association, Biltmore Hotel.

14-16—National Petroleum Assn., 36th Annual Meeting Hotel Traymore, Atlantic City, N. J.

21-23—National Industrial Advertisers Assn., Inc., 16th Annual Meeting, Cleveland.

27-29—National Assn. of Petroleum Retailers, Annual Meeting, St. Louis, Mo.

27-Oct. 2—The American Assn. of Petroleum Geologists, Mid-Year Meeting, under direction of W. Texas Geological Society, El Paso, Tex.

October

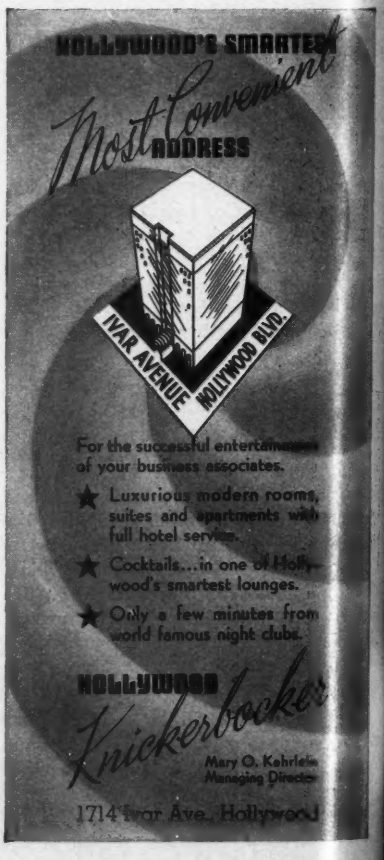
3-4—National Lubricating Grease Institute, 6th Annual Meeting, Chicago, Ill.

6-7—Society of Automotive Engineers, National Regional Fuels & Lubricants Meeting, Tulsa, Okla.

6-7—Petroleum Division A.I.M.E. fall meeting, San Antonio, Texas.

6-8—American Institute of Mining & Metallurgical Engineers, Industrial Minerals Division, Knoxville, Tenn.

10-13—North American Gas Tax Conference, Tulsa, Okla.

10-14—National Safety Congress, Petroleum Section, Stevens Hotel, Chicago, Ill.

10-14—American Gas Assn., Atlantic City, N. J.